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(1) Winton, S.S. & Chesarow, E., "A clinical study of combined chemotherapy".



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# The Manitoba Medical Review

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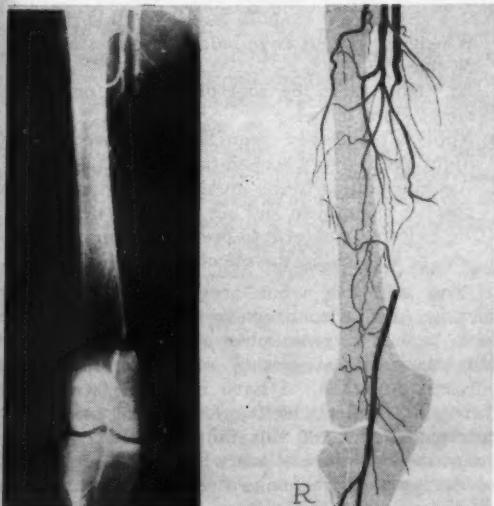
## Surgery

### The Causes and Management of Leg Ulcers

Josephus C. Luke, M.D., F.R.C.S. (Eng.)  
F.R.C.S. (C), F.A.C.S.

Chronic leg ulcers are common and are the cause of considerable disablement of a large number of people. By and large, the management of these cases reflects little credit on the Medical Profession because of a general lack of appreciation of the etiological factors involved and hence unscientific management. One so often sees the case who has been to four or five different physicians, and received four or five different ointments. Little attempt has been made to ferret out the correct etiology, and therefore treatment has been haphazard. The patient is disgruntled as well as impecunious, and the ulcer is just as large as ever. I hope by my remarks today to outline an approach to this problem and indicate the appropriate therapy.

Figure 1



Let us begin with a listing (Fig. 1) of the various types of leg ulcers in order of frequency. The first two are common and will comprise about ninety percent of the cases seen in general practice, the remainder are rare and constitute the problem cases as far as diagnosis is concerned.

Presented at the Annual Meeting of the Manitoba Medical Association, October, 1956.

Table 1

#### Types of Leg Ulcers

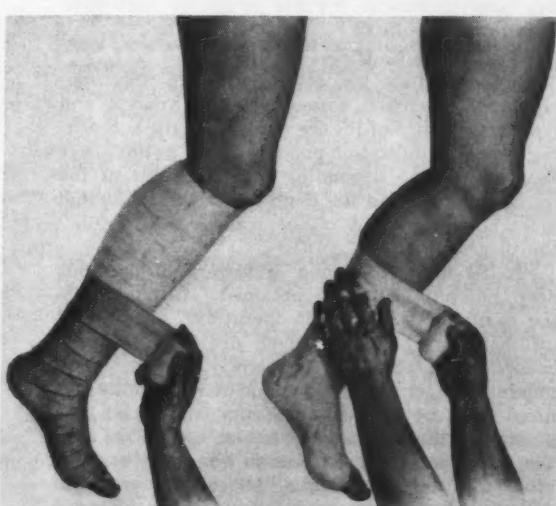
- 1) Varicose.
- 2) Post phlebitic.
- 3) Hypertensive (ischemic).
- 4) Multiple causes.
- 5) Specific (T.B., lues, mycotic).
- 6) Chronic pernio.
- 7) Neoplastic.
- 8) With splenomegaly.

#### Stasis Ulcers

##### (A) Varicose Ulcers

To many of the Profession and most of the laity a leg ulcer in the region of the ankle is called a varicose ulcer. To be a true varicose ulcer the individual must have well developed varicose veins showing a positive Trendelenburg test (reverse flow in the vein on standing due to incompetence of the valvular mechanisms). The blood Wasserman is negative and the urine is clear. There should be an absence in the history of a previous deep thrombophlebitis subsequent to childbirth, operations, serious illness or even idiopathic in type. Evidence of chronic stasis changes should be present, including cyanosis on depend-

Figure 2



ancy of the foot, pigmentation and possible subcutaneous indurations or eczema in the leg. The ulcer case with a few mild varices cannot be varicose in origin.

#### Treatment

If the above criteria have been met and the case is a straightforward one then therapy is simple. When the ulcer is not too inflamed and

hence not too painful, a well applied Unna's boot (Fig. 2) changed every ten days will heal the lesion in three to eight weeks depending on the size of the ulcer. Once the ulcer is healed, correction of the veins is indicated to prevent recurrence. Stripping of the great (and usually small) saphenous veins gives the best results in our experience. Careful pre-operative attention should also be paid to possible incompetent communicating veins which can be felt as small openings in the deep fascia. They should be exposed and ligated through separate incisions. In the post-operative individual who has had multiple recurrences and in whom the ulcer area is scarred and devitalized, an elastic stocking should be worn indefinitely to protect this unhealthy area against trauma.

If, when first seen, the ulcer is exuding markedly, inflamed and showing surrounding cellulitis, the patient should be put to bed for seven to ten days with the leg well elevated, local hot compresses should be applied and antibiotics given. When the inflammation has subsided, the remainder of the healing can be obtained by Unna's boot therapy. You will note that I have not mentioned any local or general therapy apart from the antibiotics. Local ointments of no matter what type and systemic therapy of any kind has little effect on the lesion. Common sense in the way of reduction of venous stasis and oedema and control of associated infection will do much more than any pharmaceutical miracle drugs or ointments including Vitamin E!

#### (B) Post Phlebitic Ulcers

Subsequent to an attack of deep thrombo-phlebitis, extensive damage to the venous and lymphatic return of the leg occurs. In the succeeding years devitalization changes occur in the lower third of the leg depending on the extent of the initial phlebitis and the degree that the individual must be upright. A minor trauma may initiate the ulcer.

To fit into this group, a history of previous deep phlebitis must be obtained. Childbirth is the commonest cause, but operations, pneumonia, influenza and typhoid fever are also common causes. Leg fractures frequently produce deep phlebitis, a complication which may be unrecognized because the pain, edema and fever are blamed on the fracture and hidden by the leg cast. The ulcer may appear one to twenty-five years after the initial phlebitis. Secondary varicose veins may have appeared following the phlebitis and the case be called varicose if a careful history has not uncovered the original deep phlebitis.

The management of the post phlebitic ulcer proceeds on the lines of the varicose type. Unna's paste support or the initial bed rest regime should be advised depending on the degree of local inflammation. The patient should sleep with the foot of the bed elevated and sit with the foot elevated for short periods during the day. Under

this program all these ulcers will heal. However, the great problem in this variety of ulcer is to prevent recurrence. The initial deep thrombo-phlebitis has produced extensive damage to the venous and lymphatic return, damage which cannot be repaired and consequently the etiological factors remain unchanged. We have formulated a set of instructions to guide the patient in this respect and have labelled them "The New Way of Life" (Table 3), and it is our experience that recurrence of the post phlebitic ulcer takes place only when the patient has neglected or discontinued these instructions.

Table 3  
The New Way of Life  
Instructions for the Continual Care of  
The Leg Damaged by Phlebitis

1. Wear your heavy elastic stocking from the time you get out of bed until you retire, with the exception of bath time. The stocking should be renewed every three months. It is best to have two stockings that can be alternated for cleaning purposes.
2. Do not stand for more than thirty minutes without sitting down for fifteen minutes and elevating the leg to another chair. When standing, get into the habit of flexing the toes in your shoes and frequently rising on tiptoe.
3. Plan your day so that you can lie down for two or three half-hour periods and elevate your leg to a 45-degree angle. The back of a small straight-backed chair is useful for this purpose.
4. Whenever you sit down, elevate leg on footstool or chair.
5. At night, raise the foot of the bed on blocks about eight inches.
6. Apply a bland cold cream to the affected skin at night about every second day.
7. Avoid irritation to the involved leg, especially in respect to sunburn and hot water bottles.
2. Be extremely careful to prevent bumping, bruising, or scratching the effected leg.

You will ask what are the indications for surgery in this condition? As you know, there have been a large number of papers in the past ten years all advocating different methods of surgical approach. I have collected twenty-five different surgical techniques which have been recommended. All this indicates that none are adequate and one can see why, inasmuch as none of the operations change the underlying etiology in the slightest. We have tried and discarded deep vein ligation either popliteal or femoral with associated saphenous vein stripping as advocated by Linton, also all the modifications of the Kondoleon procedure.

We feel that surgery is indicated to remove by stripping all incompetent superficial secondary varicose veins because these are an added "insult to injury" to the venous stasis. This operation is no cure, and the "New Way of Life" must still be

followed but this procedure lessens the venous stasis and inhibits recurrence. The superficial veins in a post phlebitic leg should never be operated upon or injected, unless they exhibit well marked varices with a positive Trendelenburg test and reverse flow on standing. A large ulcer with marked surrounding sclerosis heals poorly and temporarily and we feel that wide excision and grafting will discourage recurrence, but again "The New Way of Life" must be followed post-operatively on a permanent basis.

#### Hypertensive Ulcer

Under this heading belongs an unusual and rather rare type associated with hypertensive cardiovascular disease. The ulcer usually appears well above the ankle region and commences as a localized area of skin infarction due to arteriolar occlusion. The infarcted area of skin becomes black and slowly demarcates, leaving a shallow painful ulcer. Hypertension and mild to moderate evidence of leg ischemia is always associated. Healing is slow and local applications influence the ulcer but little. Lumbar sympathectomy is the best therapy but healing thereafter may take several months.

#### Specific Infections

A blood Wasserman and Kahn tests are obligatory in the investigation of all cases of leg ulcer, but it is rare nowadays to find the ulcer of tertiary syphilis. They are usually located in the upper third of the leg, punched out and not too painful. The tuberculous ulcer, however, is still relatively common and is seen in any situation on the leg, but usually middle and lower thirds. It is shallow, irregular, small and frequently multiple with pale granulations and the intact surrounding skin showing a tissue paper bluish thinness. I have seen this type most commonly in young females. The chest x-ray may show active disease as an aid in the diagnosis, and biopsy (which may need to be repeated) will indicate the characteristic pathology. Conservative therapy for tuberculosis is indicated, particularly the new anti-tuberculous drugs.

Blastomycosis is rare, but can be suspected by the carbuncle-like appearance and the raised edges of the lesion. Again, biopsy is necessary for a correct diagnosis.

#### Chronic Pernio

This type of leg ulcer is uncommon amongst Canadians, but with the increasing arrival of people from Britain this ulcer is being seen more frequently. It is the result of chronic vasospasm associated with chilblains, and the ulcers appear anywhere in the leg. Usually shallow and multiple, they have a characteristic history of improvement or healing in the summer and recurrence during the winter months. The appearance of the legs may show bluish or reddish blotches and the healing of an ulcer leaves a rounded pigmented patch.

Treatment includes protection from cold, vaso-dilator drugs and lumbar sympathectomy in the intractable case.

#### In Association with Splenomegaly

It has been my experience to see three cases presenting themselves to the Clinic with leg ulcers due to disease associated with splenomegaly. Two were acquired hemolytic anemia and one Gaucher's disease. In warmer countries where splenomegaly is more common, this variety of leg ulcer is seen more often. The reason for an ulcer in these cases is unknown, but splenectomy in the suitable case will result in prompt healing.

#### Neoplasm

It is extremely rare for a primary squamous cell carcinoma to arise on the leg. However, when a chronic ulcer has been present over a long period of time, carcinomatous changes can occur at some point in the ulcer edge. Such a carcinoma arising on the basis of chronic ulceration has been called Marjolin's ulcer in the older English text books. As a rule the diagnosis is delayed by failure of the patient to report in the early stages, and consequently the prognosis is poor. My experience consists of four of these cases, where the clinical diagnosis was proven by biopsy and wide local excision with skin grafting carried out. Inguinal and femoral node reaction was done in three cases. None of the four cases lived two years.

#### Mixed Group

Finally there is a group of patients where no one etiological factor can be blamed. There are no varicose veins, no history of deep phlebitis, no specific infections, no diabetes or evidence of leg ischemia. These individuals are usually from the very poor sections of the community where malnutrition and hypoproteinemia exist. They are usually on their feet for abnormally long periods, and their cleanliness is purely theoretical. Neglected trauma is frequently the precursor. The ulcer is large and leg edema is marked. A case should be included in this group only when all other etiological possibilities have been exhausted.

Bed rest, leg elevation and compresses will gradually reduce the size of the lesion. Local varidase or trypsin will clean a sloughing ulcer with greater rapidity. Skin grafting is usually necessary to hasten healing, and strong elastic stockings are necessary postoperatively, unless the patient can radically change his mode of living.

#### Conclusion

I hope these remarks have shed some light on this perennial and distressing problem and in particular has stimulated you into ferreting out the proper etiology of each ulcer you see. There is no more grateful patient than one which you have cured, who previously had gone the medical rounds receiving various pills and ointments with little to show for it except a depleted bankroll. Also may I emphasize again the need for the continued care of the leg in the individual with the post phlebitic leg. If you will take the time to explain to them what has happened to their leg and why this continued care is necessary you both will be gratified by the small number of recurrences.

## Medicine

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### The Clinical Value of Renal Biopsy

E. G. Brownell, M.D. and G. R. Cumming, M.D.\*

The purpose of this communication is to point out the value of renal biopsy as a diagnostic and prognostic aid.

Prior to 1951, biopsy of the kidney by percutaneous route was considered too dangerous a procedure to be used as a diagnostic aid. In 1951, Iversen and Brun<sup>1a</sup> showed that with proper care and technique, renal biopsy was safe. Up to April, 1955 some 800 biopsies have been performed by Iversen and Brun<sup>1</sup>, Kark and Muehrcke<sup>2</sup> and Parrish and Howe<sup>3</sup> without a single death and with little morbidity.

In this hospital, this procedure was first carried out in July, 1955. So far, renal biopsies have been obtained in over 30 patients without any resultant complications.

The small amount of tissue removed by a Franklin-Vim-Silverman needle gives a representative picture of any diffuse parenchymatous disease that may be present.

The indications for renal biopsy are broad. The more radical school of thought considers that any patient with diffuse renal disease who will co-operate should have a biopsy. Conservative clinicians on the other hand feel that this procedure should be limited to those patients having obscure diffuse renal disease in whom the exact etiological factor has not been determined.

The contra-indications to renal biopsy<sup>2d</sup> include the following:

1. Progressive, severe uremia with a blood urea nitrogen of more than 100 mgm. especially if associated with oliguria.
2. Any hemorrhagic diathesis.
3. An uncooperative patient.
4. Severe calcific atherosclerosis.
5. Surgical lesions of the kidney;
  - e.g. (a) Hydronephrosis.
  - (b) Pyonephrosis.
  - (c) Renal neoplasm.
  - (d) Large cysts.
6. Single functioning kidney.

Preliminary studies which should be carried out on all patients prior to biopsy include:

1. Urinalysis.
2. Urine culture.
3. An intravenous pyelogram in the prone position — in this regard we have done a renal biopsy on one patient without first doing an intravenous pyelogram. An ordinary flat plate of the abdomen revealed a clear enough shadow of the right kidney for calculation of the surface markings preparatory to biopsy. An intravenous

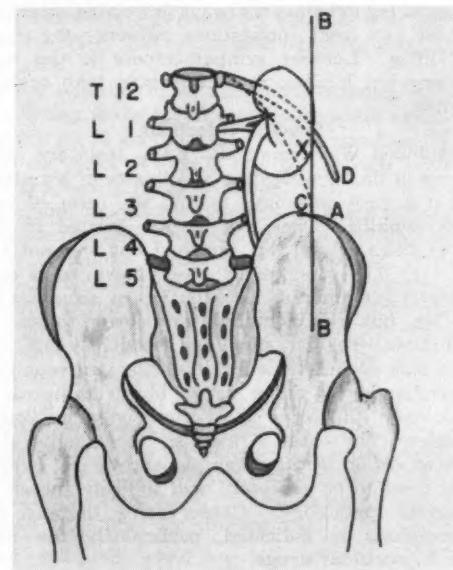
pyelogram could not be obtained on this patient because her blood urea nitrogen was 58 mgm.

4. Blood urea nitrogen.
5. Capillary fragility test.
6. Prothrombin time.
7. Other tests of hemostatic function, bleeding and clotting times.

8. A bottle of blood should be available.

The complications of renal biopsy are:

- (a) A microscopic hematuria for 6 - 12 hours in most cases.
- (b) A transitory gross hematuria in about 3% of cases.
- (c) Perirenal hematoma.
- (d) Dissemination of infection.



A. Iliac Crest

B. Lateral Border of Kidney

C. Lateral Border of Quadratus Lumborum Muscle

D. Twelfth Rib

### Technique

A. We have found the method of Kark and Muehrcke<sup>2</sup> to give satisfactory results and have used it exclusively. All patients should be hospitalized.

The procedure is first explained carefully to the patient as full cooperation is needed. In some cases meperidine, 75 mgm., and pentobarbital, 100 mgm., have been given one hour before the biopsy. Positioning the patient is important. A sand bag or a rolled-up pillow is placed under the abdomen with the patient in the prone position. This helps fix the kidneys against the back and aids exposure.

\*From the Department of Medicine, Winnipeg General Hospital.

Landmarks are penned in and the biopsy site determined with reference to available x-rays. Point X on the triangle formed by the 12th rib, the lateral border of the quadratus lumborum and the lateral border of the kidney as measured from x-rays is the site of the needle insertion. This point is usually 1" medial to the lateral border of the kidney and  $\frac{1}{2}$ " below the 12th rib. The right kidney is usually chosen because it is more easily palpated, is lower, more accessible and moves well with respiration.

**B. Procedure.** The Franklin modification of the Vim-Silverman needle is used. The additional cutting edge on the tip of this needle increases the chance of a positive biopsy. The kidney is located by a No. 21 lumbar puncture needle. With a little experience it is easy to feel the renal capsule when reached. For confirmation the patient is asked to take a breath and when the needle is in the renal capsule its free end will swing superiorly as the kidney descends with the diaphragm. Thisatraumatic exploring needle is removed and the kidney approached with the biopsy needle following the same track, inserting it the same distance.

It is important not to go too far into the kidney substance or cortex may be excluded from the biopsy specimen. The biopsy specimen is obtained with the cutting trochar in the same manner as for liver biopsy. A piece of renal tissue, 2 mm. wide and 10 to 15 mm. long, is obtained and placed in 10% formalin. The tip of the cutting trochar is dipped into broth culture medium. After each biopsy one catheterized specimen of urine is sent for culture as well.

Following the procedure the patient lies supine with a pillow under the biopsy site for the next half hour and remains in bed for 24 hours. Vital signs are checked every hour for this period and all voided urine observed for blood for a 24 hour period or longer if indicated.

Renal biopsy enables the clinician to reach a more accurate diagnosis than by the usual clinical methods. In fact, it often provides a diagnosis not previously suspected on clinical grounds alone.

In the following pathological states, this procedure is of great diagnostic value.

#### (1) Occult chronic pyelonephritis

This condition has been diagnosed by renal biopsy on several occasions when such a diagnosis was not entertained clinically. A culture is made from the needle inserted directly into renal tissue. This provides organisms for sensitivity tests allowing the choice of the proper antibiotic for long term therapy. It should be emphasized that renal biopsy material may be positive on culture when both blood and urine cultures are negative.

As pyelonephritis is a known cause of so-called malignant hypertension<sup>4,5</sup> and as it has been cited as the etiological factor in hypertension in as high as 40% of cases in some series<sup>6</sup>, renal biopsy should

be seriously considered in patients with hypertension associated with moderate albuminuria.

#### 2. Sub-acute bacterial nephritis

This new disease entity has been demonstrated by renal biopsy in patients with the clinical findings of severe hypertension, moderate albuminuria, azotemia and a febrile course. Blood and urine cultures are negative before renal biopsy, but urinary culture is usually positive following biopsy. As shown by subsequent biopsy study, this condition can often be completely eradicated with appropriate long-term antibiotic therapy. This includes relief of the hypertension.

#### 3. The nephrotic syndrome

Iversen<sup>1b</sup> has pointed out that steroid therapy is only effective in patients with minimal changes in the glomeruli. Therefore, the prognosis is much better in those cases with minimal glomerular changes. The worse the glomerulus, the worse the prognosis.

#### 4. Amyloid disease

It is frequently difficult to differentiate this condition from chronic glomerulonephritis. Even though no definite therapy is available for amyloidosis the life span in this condition of two years is usually much shorter than that in glomerulonephritis.

The following brief report is presented as a diagnostic problem which was demonstrated by renal biopsy to be amyloidosis:

Mrs. C., a white female aged 55, presented first on the 30th of July. There was no history of previous nephritis, although she stated that on two occasions in her youth she had had a short-lasting (1 day) hematuria without associated symptoms. For several years she had been known to have hypertension. For about 1 year she had felt generally rundown, weak and cold. More recently she had been having attacks of generalized headache and vomiting.

On examination she was moderately obese with some oedema of her lower lids. Her fundi showed grade III vascular changes with arterio-venous nicking, hemorrhages and exudate. Her heart was somewhat enlarged, her blood pressure 230/130. There was 1 ankle oedema. Repeated urinalyses showed a marked albuminuria (10-18 grams in 24 hours), with a specific gravity of 1.005 - 1.021; occasional pus cells and red cells from a few up to 80 per high power field. Urine culture was negative. Blood proteins were normal; total 5.6 grams, albumin 3.5. The blood urea nitrogen varied between 23 - 31 mgm. Her hemoglobin was 10.0 grams (64%), her sedimentation rate 60 mm. Although she was tentatively diagnosed clinically as chronic glomerulonephritis; the marked proteinuria, and the nausea and anemia associated with very little urea retention were considered unusual features.

Renal biopsy revealed amyloid disease.

Howe fractionation of her urinary protein tends to support this diagnosis as her albumin-globulin ratio is just less than 2:1, rather than the ratio of 3.5:1 or higher usually noted in chronic nephritis.

**5. A study of the natural history of disease** is very important in cases of Collagenosis, especially lupus erythematosus and polyarteritis nodosa. Here renal biopsy is of value in following the progress of the renal lesions especially in respect to steroid therapy. Renal lesions in lupus erythematosus often present as a nephrotic or pseudo-nephrotic syndrome and some physicians feel that steroid therapy here may aggravate the renal lesions. Serial biopsies may help elucidate this therapeutic problem.

#### 6. Sub-acute bacterial endocarditis

Renal biopsy can be an important diagnostic aid in the bacteria-free stage described by Libman<sup>7</sup>.

#### 7. Eclampsia and pre-eclampsia

The renal pathological findings; i.e., swelling of the glomerular basement membrane have been shown to be reversible in this condition.

#### 8. Renal biopsy as a patho-physiological tool

Renal biopsy studies have confirmed the physiological concept that protein is filtered by the glomerulus and reabsorbed by the tubules. Further studies of renal biopsy material with the electron microscope and micro-dissection may help to elucidate further the problem of proteinuria and whether this abnormality is due to an increased

permeability of the glomerular membrane or a failure of tubular reabsorption.

#### Summary

Kidney biopsy is of great value in correcting or confirming a clinical diagnosis of renal disease. It is a safe procedure which enables an exact histological diagnosis to be made. Such accurate diagnosis leads to a better understanding of the etiology, treatment and prognosis of renal lesions.

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## Psychiatry

### Modifications of Psychiatric Electrotherapy\*

J. H. Lindsay, M.D.

I will not labour the historical platitude that many and varied methods of treatment have proved successful for mental disturbances. Perhaps the most ancient counterpart of the subject under discussion would be the application of an electric shock to one of our unhappy ancestors by means of an electric eel. When first disturbed it has been estimated that these fish can make as many as 300 electric discharges per second and that the voltages, although averaging about 350 volts, do range as high as 600. I can therefore well imagine some cyclothymic ancient recovering after a rather jolting swim in a bath which he has shared with a few of nature's shock machines. At a later date the rather frustrated cleric and amateur healer John Wesley stated in his book *Primitive Physic*, "I am firmly persuaded there is no remedy in nature for nervous disorders of every kind comparable to the constant and proper use of the electrical machine." This enthusiasm for electrotherapy of one form or another has continued until the present day, and modifications continue to be made with our increasing technical knowledge. Its enthusiastic use has certainly not been shared by all psychiatrists including our exalted Sigmund Freud, who was prompted to state that he found himself helpless when confronted with neurotic patients, who had had their hopes of recovery shattered by the failure of previous electrotherapy. Even in the middle of the last century the proponents of electrotherapy had a satisfactory theoretical background for their use of electricity. Beard and Rockwell, writing in 1867, stated that the "torpid centres" of the brain regained their normal appearance and activity after the nuclei of the nerve cells had been shrunken by the exhaustion caused by electrical stimulation and then recovered. The production of an artificial convulsion, however, dates from Leduc's experiments in 1902. Using a current of approximately one to four milliamperes, with the electrodes placed on the head and over the sacrum of his animals, he was able to produce a state of "electric sleep." He reported that when the current was turned on, the animal fell on its side, stopped breathing and often urinated and defecated involuntarily. During this narcosis-like state the animals did not respond to even strong stimuli, and Leduc felt he might have a method which would prove very valuable as an anesthetic. His enthusiasm carried him to the heroic point of having two of his associates try the method on him. He reported that during his "sleep" he was unable

to move or speak, but that he retained his ability to perceive external stimuli, although much less acutely. After considerable animal experimentation Cerletti and Bini introduced a method of cerebral electrical stimulation resulting in a convulsive seizure. This method was quickly accepted in place of the metrazol produced convulsions, but, because of certain confusional states that followed its use, there was considerable concern about the possibility of extensive brain damage due to it. The alarming concern about this confusion and memory impairment as well as the occasional occurrence of fractures and increase of anxiety has been responsible for the numerous modifications of E.S.T. which we have today.

It was suggested in a recent talk by a Professor of Psychiatry that our grandchildren might look at us with awe and a certain amount of disgust when they realized that we had treated patients by giving them "shock treatment." Perhaps he was right, but, at the risk of being considered a barbarian by my grandchildren, I must admit that I have given considerable E.S.T. in one form or another over the past six years. I used the so-called standard high current machines for two years, while working in a mental hospital where the patients were all psychotic and in most cases severely disturbed and agitated. In the course of two years I would estimate that 5,000 treatments were given, all of them without any premedication of any kind and none of them being followed by any unfortunate sequelae other than temporary confusion and memory impairment. In some cases even this was not considered to be a contra-indication for this type of treatment, because all of the patients were confined to a hospital and all of them required at least several weeks follow-up care in hospital after their active treatment had been completed. We had an occasional sore back after the treatment, but all of these sore backs cleared up within a matter of a few weeks without any treatment and perhaps partly because they were not x-rayed and told that they had a slight fracture of their spine. When I went into the private practice of psychiatry the type of patient I encountered was entirely different from those that I had been treating in mental hospitals. I would estimate that not over ten percent of the patients are actively psychotic and disturbed to the same degree that the hospital committed patients were. The remaining patients are almost invariably suffering from anxiety states of various degrees with a secondary depressive reaction in many of the most severely anxious patients. I early found that many of these chronic anxiety states with depression became more anxious and frightened than ever after being given the conventional E.S.T., and was forced to look for other forms of treatment

\*Given at the Institute on Psychiatry, University of Manitoba, March 20th, 1956.

for them. It is possible that too much work, too little time and the easy availability of the E.S.T. machines has led to overuse of this form of treatment. However, if this were the case, I would expect that my percentage of 26% of patients who received E.S.T. in the first year of private practice would have become higher over the past five years as the pressure of work has increased. This, however, has not been true. Actually 23% of last year's patients received one form or another of E.S.T. Our critics might also say that our decision to give E.S.T. might have been influenced by the fact that patients under our care must receive either E.S.T. or insulin in order to benefit from their hospitalization insurance. I feel that this argument if true, and I don't consider it is, would only attest to the dishonesty that is forced on practitioners by our present insurance schemes. We have I am sure normal consideration for our patients' financial loss, but I am sure that this would not lead us to prescribe a potentially traumatizing treatment. This 23 to 26 percent of patients that have received E.S.T. during the past four years have been given treatments which varied in strength with the severity of their mental illness. Very simply put, I consider the agitated depressions to be the most severely disturbed and the long standing chronic anxiety with depression to be the least. For the agitated depression I still consider the standard E.S.T. to be the most effective. The equally unhappy, although mildly depressed chronically anxious person however, I have found responds much better to five minutes of non-convulsive electro-stimulation under sodium pentothal anesthesia combined with as much supportive care as possible. I have wondered if the anesthetic and psychotherapy itself would be effective in these mild depressions, and for the past few months have been giving some of these people Sodium Amytal intravenously followed by an hour's rest in a quiet darkened room. I would estimate that two to three percent of the patients whom I would usually consider to require E.S.T., have responded satisfactorily to this treatment, but it is yet too early to state what the final results might be. Some of these patients of course have not responded to the Sodium Amytal and have had to go on to E.S.T. to which they have responded satisfactorily. What I have been attempting to do is work out a dosage table of physical treatments for the patients that I have considered or found unlikely to respond to psychotherapy. I would like to consider my own technique before discussing the numerous variations of E.S.T. that other workers have described in the literature.

At the present time I find that all patients have preconceived and often rather horrible notions of electric shock either because of what they have seen on Medic or in the movies or what they have heard from other patients in the hospital. In order to make the treatment as innocuous as possible I

therefore arrange to have a staff anesthetist give them all Somnium Pentothal anesthetic for the first treatment. When they are sufficiently anesthetized to feel no pain, two electrodes are placed on each side of the head about one inch anterior and one inch posterior to the top of the ear. A unidirectional pulsating current is then administered for from 5-7 minutes. The patient will go into a severe spasm and respirations will cease if the current is raised too high. Since I always prefer to have my patients continue breathing, I lower the current from this maximum level to the stage where they breathe adequately, while showing muscle twitching of the face and neck synchronous with the pulsating current. As I have stated previously the majority of the patients seen in private practice are not deeply depressed and agitated, and, if these patients show a satisfactory response after three or four of these non-convulsive treatments, then I will continue giving them two or three a week until they are relieved of their depression and severe anxiety at which time they are usually quite responsive to continuing supportive care. If, however, I see no marked response after two or three non-convulsive treatments, I will then "increase the dose slightly," and while these patients are under anesthesia, will give them a left sided seizure by stimulating their right cerebral hemisphere with two electrodes about three inches apart over the right vertex. In this form of seizure there is a lateral flexion to the left with, in many cases, a continuation of breathing throughout the entire seizure, which lasts the usual length of time. It is quite remarkable to see the gasping type of respiration that continues throughout this seizure and of course very reassuring to note the continuing healthy hue of the patient as compared to the cyanosis that so many of them show with the more usual seizure. If the person appears to be recovering from the depression after two or three of these unilateral seizures, well and good, I continue with this form of treatment for the usual ten to fifteen treatments that might be required. If, however, after two or three they do not show a good response, I will then increase the current to its maximum and continue it for as long as necessary to have the current spread over the hemisphere and cause a bilateral seizure. Again with this seizure there is none of the extreme sudden hyper-extension which has resulted in so many sore backs and occasional fracture with the higher currents. If even this treatment does not appear to be helping the patient after four or five treatments, I will then give them the same strength of current with the electrodes placed bi-temporally and resulting in a much more severe type of seizure pattern. I find that this method of treating private patients is satisfactory in approximately 80 percent of the cases and that out-patients are able to continue with their office work or house-work without any complaints of confusion or

memory impairment or sore back which incapacitated so many of them when the higher current treatments were administered. I have found that the majority of those who require the high current type of treatment, because of their severe agitation or depression, will almost invariably require a longer period of hospital care than is possible under general hospital conditions, and that they will have to be transferred to psychopathic hospital for more prolonged care. These multiple stimulus treatments have relieved the anxiety that so often underlies mild depressive states and paranoid tendencies. Those with the depressive tendencies have often been completely relieved when their physical treatment is followed up with further psychotherapy and help in reorganizing their environment. In relieving the paranoid personalities of their anxiety and agitation we have enabled many of them to carry on satisfactorily with their work and in their homes even though their insight has remained nil and their suspicions have been lessened only in degree. However, since I feel that the majority of our work is essentially supportive in nature I would consider that these patients are improved as satisfactorily as the other patient whose diabetes is being controlled by insulin or whose angina is controlled by appropriate environmental adjustment. In relieving the depression of one long standing chronic anxiety case, who also suffered from a left sided Parkinsonism, we were both delighted to note the relief of spasticity in his affected hand. This man's E.E.G. had shown right sided abnormalities in keeping with his left sided Parkinsonism. This raises the question of what new nerve pathways, to be highly theoretical, might be opened up by focal stimulation to a long standing hemiplegic. In treating a depression in a woman who has been hemiplegic for 35 years, who is undergoing treatment at the moment, I have so far noticed a relief of the spasticity during treatment but to date no renewed movements of the hemiplegic side.

There have been many others who have fiddled with knobs and moved electrodes in different positions in an effort to modify an empirical method of treatment for an illness of unknown etiology, and I would like to mention some of the reports that have recently appeared in the literature of their curiosity and experimentation. One of the most remarkable is outlined in a paper entitled "Peripheral Electrical Stimulation — A New Form of Psychiatric Treatment" by C. H. Jones et al.<sup>1</sup> Their new treatment was administered by two saline dipped electrodes being placed on the anteromedial aspect of each leg with a third electrode on the lumbo-sacral region. Of the approximately 15 patients who received 20 of these treatments it was stated that 12 of them had shown sufficient improvement to leave hospital. The diagnostic categories were roughly 7 schizophrenics, 1 psychoneurotic and 8 affective reactive types. A recent

paper by S. P. Alexander<sup>2</sup> summarized the thinking of many psychiatrists regarding the relative merits of the unidirectional current (low amperage current) with the alternating current used by Cerletti and Bini in electroshock treatments. Although he states that the clinical results and the number of treatments necessary to produce a remission are the same with both methods, he states that with a lower current there is practically no confusion or memory impairment, somatic complications are greatly reduced and that with certain treatment modifications the patient suffers no apnea and has less strain put on his heart. Muscle relaxant drugs which some claim can cause as many complications as the standard E.C.T. can be eliminated with these modified unidirectional current treatments. An article by Joseph Epstein<sup>3</sup> describes a monopolar electroshock therapy. Like Alexander he states that clinical results parallel those of other methods of electro-convulsive treatment now in use, states that its advantage over other forms is its freedom of post-shock confusion and forgetfulness and because of a less violent seizure its freedom of the hazard of bone injuries. He states that by altering the position of the monopolar electrode one can preselect the anatomical structures which it is desired to stimulate, stating that the various nuclei of the optic thalamus or other deep structures can be stimulated by proper placement of the electrode. This technique, he claimed, offers new possibilities in neuro-physiological research and psychiatric therapy. It could be related to the work being done at Tulane University reported by R. G. Heath<sup>4</sup> et al. They postulated, and their work bore it out, that the dominance of the cerebral cortex or thought level was asserted through two hypothetical brain circuits. One which they called facilitatory, represented the septal region which when stimulated increased cortical motor activity, increased chemical activity and alerted the animal. The other, which they named inhibitory, is represented by the more lateral subcortical nuclear masses which when stimulated reduced the level of awareness, diminished chemical activity, and reduced the amplitude of cortically induced motor activity. Alteration in psychological activity occurring during psychiatric interview was accompanied by change in the E.E.G. recordings through the hypothetical facilitatory region. Schizophrenic patients displaying altered contact with reality demonstrated marked physiological abnormalities in the septal or facilitatory region. In the course of their work they were also impressed with the elimination of the spiking activity from the septal lead in the schizophrenic after administration of sodium amyta, relating this to the normalizing effect that sodium amyta has on many schizophrenics. There have been many reports over the past few months of modified electroshock therapy using various muscle relaxants in order to soften the seizure. Its enthusiasm

tic users state that it prevents the shock movements from breaking fragile bones of the older age patients as well as preventing strong muscular contractions of younger patients from fracturing their own bones. Others, however, consider that the respiratory complications that are possible with this medication create more complications than is encountered with the standard E.S.T. However, with adequate assistance from the anesthetist these difficulties are usually easily overcome.

The cyanosis accompanying E.S.T. has always been a rather uncomfortable feature of treatment to the operator. J. Jacoby<sup>5</sup> and several others after making the assumption, "It is axiomatic that anoxia is harmful to both the brain and the heart," summarized their study of anoxia in E.S.T. as follows: "Small doses of Pentothal and Succinyl Choline intravenously were administered just prior to the E.S.T. Those patients who did not receive oxygen inhalation prior to the convulsion had marked and prolonged decrease in arterial oxygen saturation (an average low reading of 65%). Those who inhaled oxygen for two to three minutes before and during E.S.T. had a minimal decrease in arterial oxygen saturation (an average low reading of 90%). Parsons<sup>6</sup> et al at the Washington University Medical School in reporting on their modern methods of E.S.T. discuss a technique very similar to what I have been using, and outlined above, for the past couple of years. They state, 'Pus, once regarded as laudable by surgeons, would now constitute malpractice. Similarly, "complications" of electroshock, as utilized originally, no longer find adequate defence in modern treatment. Judiciously applied to selected cases for particular purposes, electroshock has reached a state of therapeutic acceptance. Its application as a panacea for all psychiatric syndromes in a "routine" manner is injudicious and may be hazardous.'

In 1952 and 1953 approximately 25% of my new patients received convulsive treatment. The average number of treatments per patient was 7.5, and I would estimate that 80 to 85% of them received sufficient relief from their symptoms, which were predominantly depression, or depression with underlying anxiety, to carry on with normal living. In spite of reasonably satisfactory response to the treatment, however, many of these patients became fearful of treatments, many of them had temporary disability from sore muscles or sore backs, and I would estimate that the majority of them considered the treatment a rather unpleasant experience, to say the least. For the past two years, i.e., 1954 and 1955, approximately 21% of the new patients received the modified electrical treatment with an average number of treatments being 8.5. I would again estimate that 80 to 85% of them were sufficiently relieved to be able to return to their work with much more peace of mind than they had prior to E.S.T. None of these patients had sore backs or sore muscles, practically

none of them developed fears of the treatment, and, I must even admit, that some of them became so dependent on the treatment that they requested a continuation after I considered that they were well enough to carry on with their normal activities. Now, all of these patients over the four year period received supportive psychotherapy, administered in approximately the same manner, including considerable reassurance at the time of the treatment and always being visited while they were awakening from the treatment and given reassurance and encouragement. Many of them received some form of stimulant while they were being treated as well as H.S. sedation as required. In short, they all appeared to respond in a similar manner to their treatment, only those of the first two years had considerable difficulty with muscle pains and fear of the treatment. I feel that there is little doubt about this discomfort being attributable to their receiving convulsive treatment with the bitemporal electrode placement followed by non-convulsive stimulation and without the benefit of pre-treatment anesthetic. The patients in the last two years have all been started on treatment, as I previously outlined, namely, receiving pre-treatment anesthetic and then changing the type of treatment as indicated from non-convulsive stimulation to unilateral convulsion and then a bilateral convulsion as indicated by their response to the treatment, all being given with the pulsating unidirectional low current machine. Only in very rare cases was the high current A.C. machine employed. From my experience therefore I feel that the patients have benefited from the modifications of the E.S.T. that I have employed. I can certainly say that I also have benefited from not having had to watch them through the severe convulsive moments and apnea and cyanosis that accompanied the earlier forms of E.S.T.

Finally, I would like to say a word about modifications of another form of E.S.T., namely, the electro-stimulating therapist. Until a few years ago all these therapists were administering treatments in a mental hospital to psychotic patients; to patients suffering from the most severe form of mental illness. At that time there was only one form of electrical convulsive treatment, a psychiatrist was always a doctor who worked in a mental hospital with severely disturbed patients. Since that time many psychiatrists have ventured into the competitive field of private practice, where they are called upon to deal with a great hodge-podge of emotional disturbances. Many of the patients are seen because of temporary situational anxiety reactions or neurotic reactions to relatively normal life situations. Approximately 10 to 15% of the patients are pre-psychotic or psychotic and of these perhaps 5% are considered untreatable in the office or in the General Hospital and require admission to mental hospital. Now, even in spite of this change of type of patients we treat we are

still called psychiatrists and thereby associated with mental hospital and acutely disturbed patients. Even though we all have too much work to do, as it is, I feel that eventually, as our numbers increase, we will be able to serve a greater number of people with less embarrassment to them if they could realize that in many ways we are more akin to the old fashioned doctor who sat down with their patients and leisurely discussed their family problems with them. Even though we have specialized training and specialized techniques of treatment, we actually use these specialized techniques in only a minority of the patients that we see. The rest of them come to us for support and encouragement and for a so-called authoritative explanation of some particular problem that they might have become aware of only after having it pointed out to them by some overzealous journalist or "do-gooder." We have all entered medicine primarily to help sick people get better and be able to live in harmony with their environment. Whether we eventually do this with the scalpel, drugs or physical therapies, for surgical, medical or psychiatric disabilities depends on our preferences or particular circumstances of our training. Some of the old fashioned practitioners consider psychiatrists who practice outside of the mental hospitals as being semi-quacks. I feel instead, that we have come closer to the old concept of the doctor in this intensely subjective field of general psychiatry, and that our therapeutic empiricism must rest its case on the reactions of the patients themselves. Our job is to attempt to modify the tenacious symptoms of nervous and mental disorders by any justifiable group of techniques and we should let people realize that our treatment techniques have modified as our field of activities have changed from the mental hospital to the general practice of medicine.

In summary, I have briefly discussed the various electric treatment techniques reported by various psychiatrists in the recent literature. There appears to be a certain uniformity of results regardless of treatment techniques employed. From my own practice I have attempted to describe the dosage table that I use. Approximately 70% of the patients require only supportive psychotherapy and appropriate medication; 3% are interviewed and treated with the help of intravenous sodium amyral; 20% receive non-convulsive electro-stimulation or unilateral seizures under sodium pentothal anesthesia, in only 5% do I give bilateral seizures, the majority being given with the low current type of machine and the remainder using the original high current A.C. machine. That leaves 2% who are not impressed with my treatment methods and go elsewhere, including mental hospitals. I have mentioned how another form of E.S.T., that is the psychiatric electro-stimulating therapist has become modified from an unhurried civil servant treating only psychotic patients in a mental hospital to a rather harried public servant attempting to relieve the emotional turmoils of the relatively normal general public.

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## Gynecology

### Abnormal Presentations of the Fetus

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For anyone dealing with the problems of childbirth whether his activity is to be limited or extensive, this topic is an important one. Supposing the physician's experience were to be restricted to 100 deliveries in each year he might expect to encounter abnormal presentations in the following frequency:

Persistent occiput posterior .....	5
Breech .....	4
(Frank breech 3)	
Face and Brow .....	1 in 5 years
Transverse lie .....	1 in 5 years

At the end of 5 years he may expect to have lost 4 infants associated with the problem of abnormal presentation, and this only when he has brought reasonable skill and diligent care to the management of these complications. It is with the hope of reducing this number that we re-examine the problem of abnormal presentations.

Let us consider each presentation separately:

#### Persistent Occiput Posterior

This presentation has developed a reputation of providing no little difficulty and some hazard to the infant which follows this mechanism of delivery. A closer scrutiny reveals that a measure of the difficulty can be attributed to early and inept interference. The fetal loss is increased by this position to 4.7% or about one half again the accepted average perinatal mortality.

Adherence of the following principles will help to lower this fetal wastage:

1. A judicious delay in interference to permit the occiput to rotate spontaneously. The strength of the contractions and the progress of the labor will assist in this judgment.

2. The applications of forceps and delivery as a persistent occiput posterior, if this can be achieved without too much difficulty.

3. The rotation of the fetal head to the occipital anterior position by whatever maneuver is most familiar to the operator.

#### Breech Presentation

The subject of breech presentation requires a very close examination. There are two good reasons for this:

1. The high incidence (3 to 4%) and associated fetal mortality (12% uncorrected) breech presentation is responsible for the highest fetal mortality of any that will be discussed.

2. This loss can be reduced. The degree in which it will be reduced will depend on the skill and judgment of the attending physician.

In a series of 1544 breech deliveries reported by Schmitz from St. Louis there were 49 fetal

deaths in addition to those due to prematurity, prematurity and fetal abnormalities.

The causes were as follows:

Cerebral hemorrhage .....	20
Asphyxia .....	9
Neonatal deaths (unknown) .....	8
Prolapsed cord .....	4
Bronchopneumonia .....	2
Cerebral edema .....	2
Stillbirths (cause unknown) .....	2
Pulmonary atelectasis .....	1
Epicardial hemorrhage .....	1

Factors that influence the fetal mortality in breech presentation are as follows:

#### Size of infant

This method of delivery introduces increased hazards for both the small and the large infant. The infant in average weight range—5.5 lbs. to 8 lbs. fares best. Awareness of the problem will permit us to concentrate on the protection of this group of infants.

#### Prolonged labor

Prolonged labor is reported in 8.7% of cases and is associated with 21.8% of the corrected deaths. The fetal mortality is thus increased by three times.

#### Prolapsed cord

Prolapsed cord occurs mainly in the presence of flexed legs or the complete breech. Caesarean section has given superior salvage as compared to the use of breech extraction.

#### Episiotomy

When adequate episiotomy is not used the fetal mortality is twice as great as when the episiotomy is performed.

#### Anesthesia

General anaesthesia and ether is still the most potent relaxer of the uterine muscle—is preferred. An increased morbidity is present in deliveries without anaesthesia and an increased mortality is present in babies delivered under regional anaesthesia. A satisfactory plan is to use pudendal block for the second stage with an anaesthetist in readiness to produce complete relaxation for the delivery of the head.

#### Assistants

An experienced assistant is more important to the successful outcome of a breech delivery than in delivery by caesarian section. Some hospitals require the presence of a second trained obstetrician at every breech delivery. This team work is reducing fetal mortality.

#### Forceps

Application of forceps to the aftercoming head serves two purposes:

1. They provide a method of traction whereby

the forces are evenly distributed. Suprapubic pressure may cause intracranial damage.

2. They control the head as it is delivered over the perineum and prevent a sudden release of pressure which is also regarded as a cause of intracranial damage.

Forceps should always be ready in a breech delivery and they should be used more extensively.

#### Breech extraction

When an operator is impelled to perform a breech extraction it is well to remember the risks that confront him.

Maternal morbidity is increased three times the normal and postpartum hemorrhage is twice as frequent.

There were 22 cases or nearly half where fetal death was attributed to cerebral hemorrhage or cerebral edema. Twenty of these cases were delivered by breech extraction.

Nuchal arms were present in 34 cases, 30 of which were in breech extraction. Dieckman claims that nuchal arms do not happen but they are caused by the operator.

#### Caesarian section

The incidence of caesarean section is increased. The association of placenta previa and prolapse of cord is in part responsible for this. In addition there is the tendency to avoid the hazard of breech presentation by abdominal delivery in some cases. A caesarian section rate of 6.6% has been reported by Daley from England. An increased application of caesarian section is not the answer in lowering the fetal mortality in uncomplicated presentation.

#### Face Presentation

The diagnosis of this presentation is rare and often only accidental before the patient is established in labor. Both cephalo-pelvic disproportion and prolonged labor are associated in more than 25% of cases. Mento anterior positions give a corrected fetal mortality of 3.4%. In mento posterior the fetal mortality is 17.1%.

In the management of face presentation the often quoted maxim "If a face is making progress let it alone," is a good guide. The mento anterior will usually come to a spontaneous delivery. Many of the mentoposterior positions will undergo spontaneous rotation. If rotation does not occur, manual or forceps manipulation may be tried. If the rotation is not achieved, then the infant is best delivered by caesarian section. External and internal methods of correcting a face are occasionally successful as is internal podalic version, however these maneuvers are associated with a high fetal loss and maternal morbidity.

#### Internal podalic version

Internal podalic version has been a time honored method of finding a solution to some insoluble problems at and above the pelvic inlet. The loss of infants has been high with this procedure. As a result caesarian section has replaced podalic version as a method of delivery in many of the

instances of face, brow and transverse presentation.

It would be well to review the essential criteria for a successful internal podalic version.

1. Absence of cephalo-pelvic disproportion.
2. Fully dilatable cervix.
3. Membranes intact or recently ruptured.
4. Adequate anaesthesia.
5. An experienced operator.

If any one of these conditions are absent the physician will encounter trouble in undertaking an internal version.

#### Persistent Brow Presentation

A brow presentation is usually regarded as an undeliverable position. About 10% come to spontaneous delivery.

Forceps and manual manipulation may be used to attempt conversion to a vertex or face presentation. The cervix must be fully dilated and high forceps avoided. Internal version may be resorted to in these cases. The basic conditions must be adhered to. The experience and skill of the operator is an important factor. This procedure is so seldom called for that it is difficult for the regular practitioner to be really adept.

Delivery by caesarean section is coming into increasing use and provides a better fetal salvage and lower maternal morbidity.

#### Persistent Transverse Presentation of the Fetus

This position has long carried a high fetal mortality and maternal morbidity. There are a number of measures that would serve to change this picture.

The first is the early recognition of this presentation. In a series of 86 cases reported from the Margaret Hague Maternity Hospital the fetal mortality in unrecognized cases was over 50% while those cases that were recognized before labor was advanced the mortality was reduced to 30%.

The treatment of choice in persistent transverse presentation is delivery by caesarian section. A number of infants which come to term in the transverse position can be manipulated into a vertex or a breech. However even in cases where conditions are ideal and observation is close if the transverse presentation persists fetal loss is 50%. The following exceptions to delivery by caesarean section should be noted: the presence of a dead fetus and when vaginal examination done before surgery reveals a completely dilated cervix.

#### Summary

1. Best results are achieved when management is based on assisting the natural forces and mechanisms—not in replacing them.

2. The trend to the use of caesarean section in place of the major manipulative procedures is supported by the superior fetal salvage.

When a baby is lost in childbirth there is a strong tendency to attribute it to some non-preventable factor. When we are dealing with fetal death associated with abnormal presentation

there are many preventable factors. It will be well to review our problems from this point of view and alter our management accordingly.

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## Paediatrics

### Pediatric Anesthesia

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In spite of the steady and continued improvement of anesthetic technique for adults, the subject of Anesthesia for pediatric surgery appears to have been overlooked in many cases. Too frequently, the anesthetic care of children is left, as one writer has described it, "to old biddies who love kiddies" instead of to anaesthesiologists well versed in the physiological and pharmacological problems of the young patient.

#### Pre-operative Care

The pre-operative approach is, perhaps, the most neglected aspect of pediatric anesthesia. It seems little short of criminal that, in otherwise advanced medical centres, children are still taken into operating rooms wide awake, there to gaze on strange figures with masked faces and to see and hear the surgical instruments being prepared. But the pre-operative preparation should start long before the time of the operation, with a careful explanation to the parents of how the anesthetic will be handled, so that they, in turn, may help to adjust the child to the new experience.

It is well recognized that the influence of a nursing staff specially trained in handling young patients goes far to overcome their fear of the new surroundings, but other important factors do not seem to have received sufficient attention, even in some specialized pediatric institutions. For example, the practice of performing the cut-down for intravenous therapy, while the child is still awake in the ward, must be a terrifying experience for a small child, whereas this could equally well be done in most cases after the anesthetic has been started.

Probably the greatest influence, however, comes from the other children themselves, for if George has already had his operation he will most certainly convey his impressions — whether good or bad — to Tommy in the next bed. It is in this

respect that a recovery-room is of particular value in a children's hospital, as nothing could be more disturbing for one child than the sight of another child in the bewildered state of semi-consciousness that follows a general anesthetic.

Of all the advances in anesthesia in the past 100 years, none has brought more comfort to the patient than the use of thiopentone; it is strange, therefore, that it is not nearly so widely used for children as for adults. Most children of 8 years and older prove amenable to intravenous injections, and for them a 2½% solution of thiopentone provides a quick and easy induction. For children of less than 7 or 8 years, the same drug may be used with equal success by rectal administration. These children should have their temperatures taken regularly by the rectal route, and they will then have no objection to the insertion of the catheter for the rectal injection; furthermore, a pre-operative enema is unnecessary, as the absorption of the drug has been proved to be rapid and effective even when the rectum is not empty.

For rectal administration, thiopentone may be used in 10% solution, and at this strength the volume required is small, in contrast to the large doses of Avertin (Bromethol) needed to produce the same degree of basal narcosis. It should be noted that dosage of 20 mgm per pound of body weight, which is so frequently recommended, is unnecessarily large: it has been found, after experience with many thousands of cases, that adequate narcosis is provided by doses of 12½ mgm per pound and that it has never been necessary to use more than 15 mgm per pound. If this simple rule of dosage is followed, the occurrence of respiratory depression, or unduly delayed recovery, is virtually non-existent.

If, for any reason, the use of rectal medication is contraindicated (for example, before sigmoidoscopy), Nembutal or Seconal are the best alternatives, in the following doses:—

Table 1

Age	Dose
0 to 2 years .....	Nil
2 to 4 years .....	30 mgm (½ gr)

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4 to 5 years .....	45 mgm (3/4 gr)
5 to 7 years .....	60 mgm (1 gr)
7 years and older.....	90 mgm (1 1/2 gr)

#### Atropine and Scopolamine

Most anesthetists agree that it is advisable to use Atropine or Scopolamine as a routine pre-medication for all children, at least above the age of 3 months. What dosage is most suitable, however, is a subject of wide controversy. For example, the dose of Atropine recommended for a child of 2 years by several recognized authorities varies enormously, thus:—

Table 2

R. N. Smith .....	0.13 mgm (1/500 gr)
Digby Leigh .....	0.22 mgm (1/300 gr)
Cullen .....	0.33 mgm (1/200 gr)
J. Alfred Lee .....	0.44 mgm (1/150 gr)

In fact, relatively large doses are necessary as compared with the adult, for the child salivates readily, especially when ether is used and the following scale of dosage is recommended:—

Table 3

Age	Scopolamine	Atropine
0 - 3 mths.	nii	nil
3 - 6 mths.	0.1 mgm (1/600 gr)	0.2 mgm (1/300 gr)
6 mths. - 2 yrs.	0.12 mgm (1/500 gr)	0.22 mgm (1/250 gr)
2 yrs. - 5 yrs.	0.15 mgm (1/400 gr)	0.3 mgm (1/200 gr)
5 yrs. - 8 yrs.	0.20 mgm (1/300 gr)	0.4 mgm (1/150 gr)
8 yrs. and older	0.3 mgm (1/200 gr)	0.6 mgm (1/100 gr)

A comparison of the pharmacological action of these drugs is interesting. Both stimulate the vagus centre but act peripherally as parasympathetic blocking agents: therefore, they both protect against dangerous vagal reflexes during anesthesia and they both reduce secretions from the bronchial and salivary glands. In this respect, Scopolamine is a much more effective "drying" agent and satisfactory results can be obtained with much smaller doses than with Atropine.

The principal differences are as follows:—

1. Atropine produces a marked tachycardia: with Scopolamine the pulse rate is unchanged or slowed.

2. The cerebral cortex is stimulated by Atropine and depressed by Scopolamine: the latter is therefore a valuable drug in that it produces a degree of sedation and amnesia in the normal subject and is particularly valuable in the child with known convulsant tendencies.

3. The temperature regulating centre is stimulated by Atropine, but not by Scopolamine. This is particularly important in hot weather and in cases where emergency surgery is necessary in spite of the existence of fever.

It seems, therefore, that Scopolamine is the pre-medication drug of choice and that Atropine is definitely contra-indicated in the presence of febrile or convulsive conditions.

#### Maintenance of Anesthesia

Here again we find that the advances made in general anesthesia for adults have not been universally applied to pediatric cases.

The introduction of muscle relaxant drugs was undoubtedly a "milestone in anesthesia" allowing the anesthetist to produce excellent operating conditions, while still avoiding the use of deep and dangerous concentrations of toxic drugs. This modern technique can be equally well applied to children: the curariform drugs give excellent results, with Gallamine (Flaxedil) in doses of 1 mgm per pound of body weight being particularly well suited. This can be combined with Pentothal, Nitrous Oxide, and oxygen, light ether anesthesia, cyclopropane, etc., and supported by demerol where necessary.

In the technique of inhalation anesthesia for children, two factors deserve particular attention, namely, the avoidance of resistance to respiratory exchange and the accumulation of excess carbon dioxide. It is, therefore, of the utmost importance that any valves used in the anesthetic machine are the lightest possible, that the volume of dead space in the circuit is reduced to the absolute minimum and that the maintenance of a perfect airway is ensured. If a closed system, with carbon dioxide absorption, is used, the standard adult circle unit is most unsuitable, and its place should be taken by a specially designed, smaller, system or a "to-and-fro" absorber of the Water's cannister type.

For the majority of cases, however, it would seem that a non-rebreathing technique is most suitable. Two systems are recommended:

- (a) the Stephen-Slater valve, consisting of two one-way valves, and
- (b) the Ayre's T-piece, in which expiration is through an open-ended tube, with no valves or re-breathing bag.

Finally, the question of tracheal intubation should be considered. This technique provides an unobstructed airway, control over the respiratory movement, rapid adjustment of the depth of anesthesia and an invaluable means of administering oxygen in an emergency, quite apart from the advantages it gives in operations on the head, neck and mouth. That intubation is not more universally employed is due to the opinion, still widely expressed, that tracheitis and laryngeal oedema are liable to occur in children. This is not true, provided that the intubation is performed with real care, under conditions of adequate relaxation, with avoidance of trauma and the use of a tube of suitable size and material. We have made it a rule never to use a "cuffed" tube in children of under 10 years, and, since some children have been proved to be allergic to rubber, to use only the "Portex" type of tube.

#### The Infant

The foregoing remarks apply only to the child, in contradistinction to the infant in the first few months of life. At this age we are presented with a unique problem, for certain outstanding differences exist in the anatomy and physiology of the newborn compared with the older child.

Thus, from an anatomical point of view, the infant has scarcely any muscle tone to overcome and, because the movement of the thoracic cage is relatively ineffective, the respiration is almost purely diaphragmatic. The immature state of the neuro-muscular system also eliminates some of the problems of anesthesia, for example, the newborn will tolerate the insertion of an endotracheal tube, while awake, in a manner quite unlike the older patient.

Of the physiological differences, one of the most important is that the infant is abnormally sensitive to very small changes in the blood  $\text{CO}_2$  level, and apnea results from a very slight degree of hypoxia.

It will therefore be seen that only very light anesthesia is needed for this class of patient because, even for abdominal surgery, the necessity for profound depths of anesthesia to relax the muscles does not exist. The most important factor in providing a satisfactory surgical field is the control of diaphragmatic movement and, while this may be produced by employing minute doses of relaxants it is seldom necessary to do so, because

complete control of respirations can be obtained after a very short period of hyperventilation of the lungs, due to the unusual sensitivity to  $\text{CO}_2$  changes mentioned above.

Our routine anesthetic technique for major abdominal and thoracic surgery in infants up to 3 or 4 months old is, therefore, to intubate the trachea before inducing anesthesia and to maintain a light anesthetic with nitrous oxide and oxygen or ether and oxygen, with controlled or well assisted respiration throughout. A simple T-tube, similar to the original Ayre's T-piece, seems particularly useful for this age group, though a Stephen-Slater valve or a small  $\text{CO}_2$  absorption unit can be used, provided the resistance and the dead space in the system is reduced to an absolute minimum.

The use of the tracheal tube in the infant has been more strongly condemned than in other age groups, but the criticism is not justified if adequate care is taken in the process of laryngoscopy and intubation. Here, more than in any older patients, it is not the tracheal tube which may cause damage to the delicate tissues, but the manner in which the intubation is performed.

## Abstracts from the Literature

### **Peptic Ulcer: A Follow-up Study After Partial Gastrectomy.** Weir, J. F., Bennett, H. S., Proc. Mayo Clinic, 31: 632, 1956.

A 3 to 4-year follow-up study of the results of partial gastrectomy performed for peptic ulcer in 569 consecutive cases in 1946 and 1947 is reported. Mortality in the immediate post-operative period was 1.8%. Data were available on 443 surviving patients, including 259 operated for duodenal ulcer, 117 operated for gastric ulcer, and 67 who had operations for jejunal ulcer. The occurrence of complications was a predominant indication for undertaking operation. Recurrence of ulcer was noted in 3.2%. Indeterminate disorders occurred after operation in 2.2%. The presence or absence of complications and the posterior or anterior colic placement of the anastomosis seemed to play little role in the development of recurrence. The phenomenon of dumping was of major importance in 3.4%. The incidence of some degree of this disorder was higher after resection for gastric ulcer than for duodenal or jejunal ulcer. The presence or absence of preoperative complications or the posterior or anterior placement of the Polya anastomosis in reference to the colon seemed to have little relationship to the occurrence or degree of dumping. The Billroth I anastomosis was employed in too small a group of cases to warrant any statement as to its efficacy over the Polya anastomosis in preventing recurrences or dumping. However, recurrences and the dumping phenomenon did follow this operation.

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### **Roentgenologic Evidence of Calcification in a Peripheral Bronchogenic Carcinoma.** Good, C. A., McDonald, J. R., Proc. Mayo Clinic, 31: 317, 1956.

A case report shows that a bronchogenic carcinoma may give evidence of calcification in pre-operative roentgenograms. In this instance the calcium had been deposited in the lung years before as a result of an inflammatory lesion, and it represented the healed scar of this disease process. This scar was engulfed by the growing neoplasm and was completely surrounded, although not invaded by it.

In the majority of instances a solitary peripheral mass in the lung will prove to be benign if it contains roentgenologically demonstrable calcium, especially if the mass is heavily calcified or if the calcium appears to be laid down in layers. However, the possibility that the tumor, may be malignant must be kept in mind. Significant symptoms of respiratory disease, and especially hemoptysis, or evidence of growth obtained by the examination of serial roentgenograms, are strong arguments in favor of exploratory thoracotomy. In the absence of symptoms, and with the additional evidence of stability over a period of years, the calcified lesion need not be explored immediately. It should never be dismissed as insignificant, however, but must be kept under observation by means of semi-annual or annual roentgenologic examinations.

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### Tetanus

#### A Problem for the Anaesthetic Department

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Tetanus is an ancient and deadly disease caused by the action of the toxin of Clostridium tetani on the nervous system, described at least as early as the time of Galen. Interest in the disease has revived with each outbreak of warfare, when tetanus took a heavy toll of life in the past.

#### Case History

A 13 year old Mennonite boy was referred to the Children's Hospital on August 27, 1956, from the King George Hospital where the boy had been admitted two days previously with pain in the back, inability to open his mouth and stiffness of his neck as well as difficulty in swallowing solids. Lumbar Puncture was performed at the King George Hospital where his C.S.F. was found normal, showing one cell per cubic millilitre and 25 mgms.% protein. An old laceration was noted under his right great toe and several abrasions over his body. Dr. C. S. Livingstone considered the diagnosis to be almost certainly tetanus and sent him to the Children's Hospital.

On admission he was found to have marked stiffness of the neck and limbs with trismus and difficulty in swallowing. Attention was naturally focused on the laceration previously described, which he had acquired by stepping on a rusty nail in the farm yard about six days previously. Treatment was begun with tetanus antitoxin and crystalline penicillin. Called in consultation we thought that the short incubation period (6 days) and the rapid march of symptoms from first stiffness to trismus and dysphagia (2 days), were ominous signs. However, he seemed to have remissions between spasms, when only slight stiffness and risus sardonicus persisted. No generalized convulsions had occurred. Accordingly, treatment was begun on sodium amytal grs. 3 by intramuscular injection, and this was repeated to a total dosage of grs. 8 in the first ten hours with good control of spasms. It was felt that muscle relaxants were not yet needed except possibly as a supplement to sedation. Arrangements were made to get a supply of repository d-tubocurarine chloride, kindly donated by Abbott Laboratories.

Although the boy spent a fair night, muscle spasm and opisthotonus were persisting, becoming very marked when stimulation occurred, such as intramuscular injections. Sodium amytal was therefore given by mouth in doses of grs. 6 and zoxazolamine (Flexin McNeill) was begun in dosage of 250 mgms. every 6 hours orally with meals as far as possible. Considerable lessening of



muscle spasm and some increase in comfort ensued. About this time the nurse on duty made an important observation. There was a small stab wound on the left foot which had escaped everyone's attention, which the patient had acquired by stepping on another rusty nail some time before injury to the right foot. The longer incubation period, now apparently about 10-14 days, if this wound was the original site of entry of the organism, improved the prognosis. The importance of searching for every possible site of infection is obvious.

By the third day after admission to the Children's Hospital, the muscular spasms were occasionally becoming extremely severe and painful and myanesim (Tolserol 10%) was given by mouth in doses of 1 to 2 drs. as needed. Relief was profound. This regime was continued with constant 24 hour nursing care. By the sixth day after admission and the tenth day from first onset of symptoms the patient seemed to have passed the worst of the disease, but sedation and relaxants were continued for another three days.

Recovery was then uneventful and he was discharged from hospital on September 8, 1956. He has since been interviewed by the resident medical staff and nurses when he came to offer his thanks and appeared in excellent health and spirits.

#### Pathology

Remarkably little is known about the mode of entry, the site and the nature of action of the tetanus toxin in the human. Abel<sup>1, 2, 3, 4, 5</sup> of Johns Hopkins Hospital, in his extensive researches on tetanus argued convincingly against the long-accepted theory that tetanus toxin was carried to the Central Nervous System via the peripheral nerves. There is no space here to discuss Abel's controversy with some German workers in the light of more recent work but from Abel's experimental findings I wish to mention two of interest:

- When all the nerve trunks to a limb are transected tetanus cannot be produced in the muscles of that limb.

- Anti-tetanic serum used in animals and humans whose tissues had previously fixed lethal

doses of the toxin failed to save life, and could not be said to have a specific curative action. However, because of its effectiveness as a prophylactic before fixation of the toxin, Abel advised its use in all cases of the disease, though he considered that sub-arachnoid injection conferred no special benefit on the patient.

More recently, Brooks<sup>6</sup> has found a resemblance between tetanus toxin and strychnine in their actions on the central nervous system. Both suppress all types of synaptic inhibition in the spinal cord. Anyone who has palpated the recti abdominis and back muscles simultaneously in rigid tonic contraction in a patient with severe, fully developed tetanus can believe that this theory is at least part, if not all of the story. The disease may affect the brain stem (Woolmer<sup>7</sup>) and cause inco-ordination of vagal nuclei with loss of the defence mechanism of the larynx. In such cases tracheotomy is essential. Even if the main or primary site of action of the tetanus toxin be in the central nervous system, nevertheless the manifestations of the disease are peripheral, in the muscles. Death results from exhaustion, glottic spasm and convulsions, but not from the neurological lesions<sup>8</sup>.

#### Treatment and Prognosis

Calvin and Goldberg<sup>9</sup>, gave the prognosis of tetanus as around 83-84% fatal when the incubation period was less than 10 days, but found that mortality declined rapidly with longer incubation periods, being approximately 25% when incubation was between 14 and 21 days in duration.

Because of the lack of specific therapy, tetanus has retained a fearful death rate to the present day. Prevention by immunization has proved the most effective weapon against the disease. In the absence of the use of muscle relaxants by a physician qualified to do so adequately and safely, the treatment of an acute case is likely to follow the general lines laid down by Taylor in 1934 with no better results than these quoted above. Taylor described three lines of defence which are probably still sound in principle, if inadequate in practice:

1. Treatment of local focus.
2. Administration of appropriate sedatives and general supportive therapy and

3. Giving specific anti-toxic serum.

To these one should now add a fourth, namely the judicious use of muscle relaxants with tracheotomy.

Although sedatives have generally been recognized as of the utmost importance in treatment, controversy raged around the place of surgery and of anti-serum. Owens and Porter<sup>10</sup> declared then that an ounce of clean surgery was worth several pounds of serum therapy. Taylor regarded the local wound as an acute surgical emergency and said, that, if it could not be incised, it should at least be explored and foreign material removed.

I do not propose to discuss the use of anti-serum here but feel that it is logical to remove any source of toxin production in the form of foreign material. Chronic, recurring tetanus has been described lasting for months and eventually cured by surgery (Welphy<sup>11</sup>). By his training the Anaesthesiologist is probably the best qualified person to co-ordinate and direct the treatment of acute tetanus. In the case described the Anaesthetic Department was very fortunate in being asked to undertake treatment from time of admission and in being given full support by our physician and surgeon colleagues. This was both stimulating and gratifying. The disease has a characteristic pattern of progression, and to be in charge from the beginning enables one to judge better how treatment should be planned.

Among the sedative-hypnotic drugs bromethol (avertin) once held pride of place for tetanus. Anaesthesiologists now use it uncommonly in daily practice, outside a few centres. It has been used for very long periods without any apparent liver damage. However, liver damage can occur following prolonged and repeated administration and with large doses, considerable hypotension and respiratory depression are common. Concomitant anoxia can be a powerful contributing factor to development of jaundice. In fact, apart from facility of administration by the rectal route, bromethol confers no special benefits on these patients. Most anaesthesiologists prefer to use drugs with which they are more familiar and which are at least as efficient.

Barbiturates have a definite place both in the treatment of milder cases of tetanus and in the earlier stages of more acute cases before severe convulsions supervene, as well as their use as somnifacients. They themselves exert some anti-convulsant action and lessen required doses of muscle relaxants.

Accumulative overdosage must be avoided, nor should barbiturates be used alone in the presence of pain as excessive stimulation and worsening of convulsions may then occur. Batten<sup>12</sup> used pentothal by continuous intravenous infusion in a patient with acute tetanus for two weeks administration, without tracheotomy, a hazardous undertaking. A small dose of 2½% sodium pentothal intravenously may be needed to control a sudden, unexpected convolution. Prolonged use is however, undesirable and for repeated, severe convulsions, muscle relaxants are indicated. To abate the spasms of early or mild tetanus one may efficiently use long or medium acting barbiturates, e.g.—sodium amytal by mouth or dissolved in intravenous solutions.

As stated, barbiturates in the presence of pain may cause extreme agitation. The vicious circle muscle spasm—pain—more muscle spasm, may be broken in the central nervous system by using analgesics such as demerol or nisentil. Morphine

enhances spinal cord reflexes and is probably best avoided. Analgesics such as demerol and nisentil damp down pain reflexes and reduce nervous activity either in the spinal cord or more probably in the reticular activating substance of the medulla. Direct respiratory centre depression is a side-effect to watch.

Muscle relaxants are the latest and most promising development in the treatment of tetanus. Shackleton<sup>13</sup> successfully used succinyl choline in a case of tetanus and declared with pardonable enthusiasm that no patient need now die of this disease. In less expert hands than those of this anaesthesiologist we hope that no patients die of the treatment. It is essential to know the dangers inherent in the use of muscle relaxants, which are mainly those consequent on paralysis of the muscles of respiration. One must remember that in most tetanus patients where muscle relaxation to the point of complete paralysis is necessary administration will most likely have to be continued for at least one week, during which time fully trained anaesthetic supervision will not be constantly available within seconds or minutes. One must resort to these methods only when indicated.

With regard to the indications distinction must be made between:

1. The use of muscle relaxants as a supplement to sedatives in early or milder cases.
2. Their use in severe tetanus convulsions when they form the first line of treatment.

In the first group the indications for use of muscle relaxants are often difficult to define. However, when excessive dosage of barbiturates is being approached with diminishing effect, a muscle relaxant such as myanesin can be very useful. The second group of cases involves the use of fully paralyzing doses of muscle relaxants together with tracheotomy and intermittent positive pressure breathing. This treatment is indicated for those patients in whom severe, exhausting convulsions are involving the muscles of respiration or the glottis or where dysphagia and muscle spasm make it impossible for the patient to keep his upper respiratory passages free of secretions. Immediate tracheotomy is essential with the insertion of a short, cuffed, endotracheal tube, artificial respiration and suction. This apparently drastic treatment must be set in train as soon as the above indications exist or the mortality will be high. Cabinet respirators are undesirable for these cases. They are unwieldy, make access to the patient difficult, hamper nursing care and physiotherapy and may be impossible to use with tracheotomy unless really high. In 1952 the epidemic of poliomyelitis in Greater Copenhagen gave the doctors at the Blegdam Hospital the most extensive experience in European history at least in artificial respiration on a heroic scale. Dr. H. C. A. Lassen<sup>14</sup>, Professor of Epidemiology in the

University of Copenhagen and Chief Physician of the Blegdam Hospital, describes how, during the first week of this terrible epidemic, he treated 31 patients with paralytic poliomyelitis using the old type tank and cuirass respirators with a mortality of 87%. On consultation with his anaesthetic colleague, Dr. B. Ibsen, it was decided to use the method of tracheotomy, insertion of a cuffed endotracheal tube and manual inflation of the lungs by using a mixture of 50% oxygen and 50% nitrogen with a soda-lime canister to absorb carbon dioxide. With the paid help of 1,000 medical students, 250 further patients were treated with a mortality of about 40%. This simple but very efficient technique can be modified where an efficient automatic pulmoflator is available.

In our Anaesthetic Department we have found the Jefferson Ventilator to be safe and satisfactory and would not hesitate to use it for prolonged artificial respiration with 50% oxygen and nitrogen or 50% oxygen and nitrous oxide mixtures.

#### Choice of Relaxant Agent

Almost all muscle relaxants have been used with varying success in the treatment of tetanus. For purposes of this condition the most useful sub-division is into short and long acting agents, though the site of drug action, whether peripherally at the neuromuscular junction or in its vicinity, or centrally in the spinal cord or at higher levels is an interesting, if academic, consideration. In essence the degree of muscle tone probably depends on the amount of Acetyl Choline released at the neuromuscular junction. Factors tending to increase the amount of Acetyl Choline produced are sensory stimuli and the tetanus toxin, while factors tending to diminish formation of Acetyl Choline are sedatives and perhaps tetanus anti-toxin, whereas cholinesterases hasten the destruction of Acetyl Choline and muscle relaxants prevent it in different ways from exerting its normal physiological action of causing muscle contraction.

#### Discussion

Myanesin (syn. Mephenesin, Tolserol, Lissaphen) is unique among commonly used muscle relaxants in diminishing reflex activity by a central action on the spinal cord and basal ganglia. Zoxazolamine may act somewhat similarly, though it would seem much less effective. Both can be given by mouth but myanesin has a local anaesthetic action and should be given by stomach tube if dysphagia is marked. It should not be given intravenously in strengths above 2% or it may cause serious thrombosis, red cell destruction, haemoglobinuria and possibly fatal oliguria. Myanesin is a very valuable agent in the treatment of early or milder cases of tetanus. Other agents to consider are d-tubocurarine ( . . . Bjorneboe, Ibsen and Johnson<sup>15</sup>), gallamine (Flaxedil), decamethonium (C10) (Rankin et al<sup>16</sup>) laudolissin and suxethonium and suxamethonium compounds (succinyl choline,

Anectine, Quelicin, Scoline) (Burke<sup>17</sup>). Of these agents succinyl choline has the shortest duration of action. Using it, the anaesthetist can bring the patient, under optimal conditions, from the most profound flaccid paralysis of all voluntary muscles to almost complete recovery of normal tone within about five minutes. This would seem to offer a chance to follow the minute to minute changes in release of Acetyl Choline at neuromuscular junctions more faithfully than with other relaxant agents incapable of such fine adjustment. Succinyl Choline is given by intravenous infusion in strengths of 0.1 - 0.5% depending on the fluid balance requirements of the patient from time to time. Its use should be restricted to severe cases where tracheotomy is needed. With it, Shackleton reported a successful case, using intermittent positive pressure breathing with a 50% oxygen and nitrous oxide mixture in order to reduce central sensory stimulation and consequent increased motor impulses in the final common pathway to muscle. Bjorneboe et al reported a case of tetanus with a six day incubation period successfully treated by tracheotomy, paralyzing doses of curare and 50% nitrous oxide, oxygen anaesthesia. Although the use of nitrous oxide increases the hazards of the technique the idea is a good one and might be utilized in giving intermittent small doses of analgesics such as demerol or nisentil when direct supervision of the nitrous oxide-oxygen mixture by an anaesthesiologist is impossible. To avoid the dangers of oxygen toxicity (Comroe and Dripps<sup>18</sup>) it is probably better not to give oxygen for a prolonged period in a mixture richer than 50% with air, nitrogen or nitrous oxide.

Various relaxant drugs have their advocates. The important thing, perhaps, is that they be used in adequate dosage by those accustomed to their properties.

In these patients with acute tetanus supportive therapy, which it is not proposed to discuss here in detail, is of the utmost importance. With the use of full muscle paralysis many of these patients will need gastric suction with maintenance of

fluid and electrolyte balance by the intravenous route. Constant moving and physiotherapy are needed. Daily chest x-rays with aspiration of secretions by bronchoscope if needed and the use of suitable antibiotics are matters of the utmost importance. A daily conference of all the departments concerned, medicine, surgery, E.N.T., radiology and anaesthesiology would be ideal. Although the treatment of these difficult cases is often extremely tiring on all concerned, the outcome can now be successful, in patients who would once have undoubtedly died.

#### Summary

The treatment of tetanus is discussed with reference to the role of the Anaesthetic Department. The possibilities, complexities and dangers of muscle relaxant agents are outlined and the actions of some of these agents described. The history of a moderate case of tetanus is presented.

#### Acknowledgments

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## Special Paper

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### Who Is Normal?\*

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Winnipeg

#### Introduction

There is a story that many years ago a group of philanthropists solicited from George Bernard Shaw a financial contribution toward the building of 'a private asylum for abnormal people'. G.B.S. is said to have expressed complete lack of interest, adding, however, that he would gladly contribute substantially toward an asylum where **normal** people could find refuge! Shaw had his own ideas about who is normal. So does every doctor; the familiar words normal and abnormal are in constant use, and there is little difficulty about what they ordinarily mean: the one suggests association with good health, the other with ill-health. With this everyday, common sense use of these words of course I heartily agree.

But we do not always get off so easily. Every now and then something happens that makes us feel a little uneasy about how clearly we know just what we mean by normal and abnormal, and makes us wonder about the reliability of some of the more elaborate procedures whereby eventually one person is labelled healthy and another unhealthy. What do we mean by health, good or ill? This was excellently discussed by the late Professor J. A. Ryle of Cambridge<sup>2</sup>; but no attempts to define various states of health are much more practically helpful than our loose, everyday impressions of these conditions.

So back to our query: Who is normal? Or should it be: Who is abnormal? And how do we know? Difficulty in applying these terms to people leads us to transfer them to certain parts or attributes of people: body weight, eyesight, blood counts, blood pressure, blood chemistry, X-ray films, and so forth. Then we phrase the question: **What** is normal? To take a familiar instance, what is the normal blood pressure? Is that question any more easily answered than the other, **Who** is normal? It reminds me of Lord Moynihan's outburst: 'Every week as I incompetently play my round of golf I watch the highly accomplished performance of two rounds by a friend whose blood-pressure has not been known to fall below 285-170 in the last ten years; and one of the most eminent of my professional colleagues frequently repeats to me a statement I first heard him use during the war: "I feel a worm if my systolic pressure falls below 200" . . .' Which was abnormal, that man's altitudinous blood-pressure or his years of good health?

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†Read to the Manitoba Medical Association, October 16, 1956.

What do we mean by normal and abnormal? We are not so far removed as we might suppose from believing that diseases are caused by witchcraft, the evil eye, or the wrath of God — that is, by supernatural agencies. Even Webster has defined normal as 'that which conforms to natural law,' implying the unnatural nature of the abnormal! Today our profession is so accustomed to the idea that the bodily mechanisms underlying both good health and ill are the same that we may not realize that this doctrine has been current for little more than a century, one of its cornerstones being a paper by the great Edinburgh anatomist, John Goodsir, entitled 'Observations on the Structure and Some of the Pathological Changes of the Kidney and Liver' (1842). Notwithstanding the familiar saying that it is as natural to die as to be born, the notion that it is as natural to be abnormal as to be normal seems not yet to have gained complete acceptance.

#### The Normal in Relation to Health

While we may easily recognize that a person is ill, can we be so sure who is normal? The presumption of normality is often based upon the absence of complaints, apparent good health and vigour, and failure to detect what is considered abnormal upon physical and laboratory examinations. In this connection may I gently remind you of the man who is the picture of robustness, is accepted by an insurance company as a first class life, pays his first premium, and soon drops dead! The necropsy shows that his coronary arteries must have been in a dangerous condition when he paid his premium. We have no way of being certain that anybody is absolutely free of disease, because this implies something akin to proving a universal negative. Of course we hear much about health being more than just the absence of disease; but again the pathologist can often assure us that at a time when we know the patient to have been bursting with 'positive health', he must have been carrying around the carcinoma that encompassed his death. No, we cannot tell who is normal, only who seems to be normal.

#### The Normal in Relation to Statistics

But we do not surrender our ideal of the normal without a fight. We change our philosophical tactics, and say that if the normal cannot be related practically to good health, it can be considered to be what is usual, or typical, or true of the majority.

We insist on calling a slight hypospadias abnormal, not because of any relationship to ill health, but because it is not typical of the majority of males. Ah! the majority. Yes, medical statistics will save the day. So we weigh people and measure them, we count their various kinds of

blood cells, we estimate the amounts of sundry chemicals in their urine, blood, and other fluids, and for each of these quantities we compute an average, sometimes allowing for age, sex and other variables. Of course we have outgrown the naïvety of identifying the normal with the average, but we often do equate it with a range of values. However, when we try to identify the precise limits of the normal range, when we strain to recognize the boundaries between normal and supernormal, and between normal and subnormal, we find that we lack any objective landmarks. Shall we say 10% or 20% on each side of the average? Shall we set plus or minus twice or three times the standard deviation? We do not know. We are lost in no-man's land, where we cannot tell friend from foe, for either may masquerade in the uniform of the other, and our estimates of probabilities fail to reveal their true identities.

We think of such averages and ranges as applying to the population in general, or to certain age, sex or occupational groups, comprising sub-populations. But such averages, standard deviations and ranges are computed from samples, and it is then supposed that the value in the population is the same as that in the sample. Some people know that even with the best sampling techniques there is such a thing as sampling variation, which is allowed for by computing confidence limits and the like. But no such statistical refinements can compensate for erroneous sampling techniques to begin with. For sampling statistics to approach general validity, samples must meet certain specifications: (a) they must be adequate in size; (b) they must be reasonably consistent among themselves, and (c) they must be drawn at random from the population they are supposed to represent. The criteria of these attributes are highly technical. I shall restrict my remarks to randomness, since the importance of this is perhaps least commonly appreciated. Many of our so-called normal standards have been computed from samples consisting of medical students, student nurses, volunteers in the services and the like. A sample consisting entirely of volunteers is anything but random psychologically. Far from being random, these are obviously highly selected groups, and the derivative standards are valid only for similar sub-populations, not for the general population.

But the situation is even worse than this. Having computed our averages, ranges, and the like, we proceed to forget about the usual or typical, and to think of such statistics as being related to good and ill health, because, we say, the original measurements or counts were made upon healthy people. But how did we know that they were healthy? Isn't that what we are trying to find out — how to tell who is normal? If we know that our original subjects were healthy, what on earth are we trying to do? Since we do not know, but merely assume that the subjects were healthy,

clearly our statistics are no criterion of good or ill health. One sample of such supposed normals was specially investigated from this point of view, and an astonishing collection of abnormalities was revealed. No, we can not set up strictly normal standards at all, because we have no certainly normal people to start with. I have spent many years trying to teach normal anatomy. But how am I to know what is normal? The dissecting room population is (a) dead, (b) predominantly elderly, and (c) demonstrably diseased. It is far from being a random sample of the general population, and it is anything but healthy.

#### The Normal As What Ought to Be

I have discussed two concepts of normal: that it bespeaks good health, and that it is statistically predominant. I now want to mention a third: that normal is what people ought to be. In spite of its superficial plausibility, this is dangerous thinking. The Healing Art is the art of applying medical knowledge in caring for sick and injured people; and medical knowledge is but a field of scientific knowledge, that is, knowledge of the objects and phenomena of this world as they are, or at any rate as we know them; what we think the universe ought to be like is not science. And how do we know what people should be like?

#### Conclusion

My thesis is that although the abnormal is often obvious and unmistakable, the concept of normality is inherently unworkable. It is a dream, an ideal that cannot be brought into practical relationship with 'the poor sons of Adam'. Who is normal? is in my opinion an unanswerable question, though some people think they know the answer<sup>1</sup>.

If that be so, is any substitute available? One has been suggested by Homer Smith, in a brilliant discussion of this problem<sup>2</sup>, and I am venturing to modify his suggestion. Disease and injury are disabling. Pain is itself disabling, and death may be thought of as the complete disablement. Disablement in this broad sense is what doctors are called upon to prevent or treat. Certain conditions, alone or in combination, are associated with disablement to varying degrees. The insurance companies have led the way in estimating the probability of disablement if certain ascertainable conditions are observed (e.g., gross hypertension, overweight, and the like). Instead of attempting an all-or-none, mutually exclusive classification of people as normal or abnormal, estimation of each person's liability to disablement of certain kinds would probably prove more practically useful in many instances. This would require not only considerable reorientation of medical thinking, but also much research of a kind already pioneered by insurance companies.

May I conclude by returning to something that I said near the beginning? I said then, and I now repeat, that to the ordinary daily use of normal

and abnormal there is not the slightest objection. It is when stricter, more rigorous consideration is called for that the concept of normality proves unworkable, and might profitably be replaced by appropriate applications of the theory of probability to medical observations.

But perhaps I have now reminded you that  
 There once was a man on a syndicate  
 Who arose his contentions to vindicate;  
 He wished to deny  
 That he meant to imply  
 The opinions his words seemed to indicate!

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## Medical Memoranda

### A Case of Stevens-Johnson's Disease of Unusual Severity

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 King George Hospital

The following case is presented because of its unusual and severe character. The patient, a young boy twelve years of age, was in good health up until the morning of January 8, 1956 when he complained of a headache which, however, did not prevent him from going to the house of a friend in the afternoon to watch television. On returning home he refused to eat supper because he was nauseated and his mother called the family physician. He, unable to find anything the matter with the lad except a mildly elevated temperature, prescribed a capsule containing aspirin and codeine. The boy was chilly during the night and the following morning a rash was noticed, which at the time was confined to his face. Penicillin was prescribed. On January 10th the rash had spread to his trunk. A tentative diagnosis of scarlet fever was made, and he was referred to the King George Hospital.

When seen in the admitting room at 9.30 p.m. on January 10th the rash on his face and trunk resembled the rash of measles. Conjunctivitis and photophobia were present and the mucous membranes of his mouth were heavily injected. No Koplik's spots could be seen. The temperature was elevated to 102.4°F. The circumoral pallor mentioned by the family physician was very definite. The boy was mentally alert, and the other systems were normal. A small bleb on the left cheek was noticed by the admitting intern, to which little or no attention was paid. The patient was sent to the flat as an atypical case of measles. He received 600,000 units of procaine penicillin.

In the morning the morbilliform rash was still present but superimposed over the cheeks, behind

the ears and beneath the chin were huge blebs. Smaller blebs were forming rapidly over the upper chest. The conjunctivitis and photophobia were the same as on admission. The lips were swollen and abraded. The buccal mucosa was an angry red with numerous raw areas as though blebs had formed and broken. The pharynx was not well visualized, but he swallowed easily. There was no noticeable involvement of the mucous membranes of anus or urethra. The diagnosis was changed to that of Stevens-Johnson's disease.

That evening his temperature rose to 105°F, multiple blebs covered the trunk and extended over the limbs. The penicillin was discontinued and the following treatment carried throughout his illness with only minor changes.

Chloramphenical — Mgm. 250 O.H. VI per ora  
 ACTH — Mgm. 25 O.H. VI I.M.

Neomycin Sol. — 0.5% in both eyes O.H. II.  
 during the day.

Neomycin Ointment — (Ophthalmic) in both  
 eyes h.s.

Cortigen Sol. — 5 mgm/1 cc. in eyes O.H. I.

The morning of January 12th he appeared much worse. He was confused and irrational at intervals, and only able to sleep for brief periods. The photophobia had increased and he was nursed in a room with all shades drawn. Later in the day from hair line to ankles he gave the impression of being wrapped in one continuous bleb. Fortunately, for treatment and investigation the ankles were spared. There was surprisingly little oozing at this time. Moist dressings of Burveen were recommended and applied.

Either from temperature or a real antipathy to food, he refused all nourishment of value, and though able to swallow, was subsisting chiefly on coca cola. With hesitation and apprehension a polyethylene tube was passed through his nose on January 14th. Our apprehension had been groundless as the tube passed easily and feeding him was no longer a problem. The daily meals of the hospital were "blenderized" to a consistency which, when added to the fluids to make a mixture of 3,000 ccs., passed down the tube without difficulty. Medication and extra vitamins could now be added without strenuous objections from the patient.

The blebs commenced to break on January 14th and there was more oozing but not excessively so. The boy was now placed on a Stryker frame to facilitate his treatment.

Up to January 14, 1956, the blood picture and urinalysis had not caused undue concern. They were as below:

Urine	Blood	Serum
Sp. Gr. — 1.029	W.B.C. — 7,200	Serum Electrolytes
Hbg. — 15.7 gms	P — 75	Na — 130 mEq.
	S — 3	
	L — 26	K — 5 mEq.
Alb. — 0.1	M — 5	Cl — 91 mEq.
Sed rate — 13 mm	B — 1	
	Hematocrit — 49%	

Because of the severe degree of skin involvement which did in fact resemble a second degree burn involving approximately 90% of the skin, a close check was kept on serum electrolytes. By January 18th serum sodium was down to 120 mEq despite daily addition of 12 gms. of salt to the diet. The serum sodium remained at this level for the next two weeks. It was after the skin lesions began drying that the serum sodium approached normal levels.

His temperature, which had been registering 99° F in the morning and 101-102°F in the afternoon, rose on January 18th to 103°F and for the next ten days varied from 99-104°F in the p.m. Chloramphenical was discontinued and erythromycin mgm. 250 O.H. VI. given with no improvement. Physical examination was difficult to do, but where one dared to place a stethoscope the heart and lungs sounded normal. The initial x-ray of his chest had shown no abnormality and no further x-ray examination could be attempted. He had remained mentally alert, except for the one day mentioned above. Being practically denuded of its superficial layers, his skin was now exquisitely tender. He complained bitterly of the cold if the door remained open for even a few seconds. As he failed to show much improvement on his present regime and in view of favorable reports on the treatment of this condition with blood transfusions, he was given 250 ccs. of blood on January 20th, which was repeated the following day, though there was no severe degree of anemia present.

The legs and face became oedematous January 24th and the 24 hour urine Na, which had been gradually rising, now suddenly reached 130 mEq, with K 102 mEq in an urinary output of 2330 ccs. in 24 hours. Intake in diet was reduced to NaCl 6 gms, KCl to 0.66 gms. and the ACTH to 12½ mgm. with further reductions in all as necessary.

The patient was feeling much better, though his skin was still quite sensitive. He could now be covered with large sterile vaseline dressings and sponges cut to the shape of his body. These were held in position by scultetus bandages and maintained till patient and nurses could stand the odor no longer. The Stryker frame proved valuable in facilitating the changing of these dressings and in securing rest and sleep.

Expecting complications to arise from infection it was a relief that none of any seriousness occurred until January 28th when he complained of being unable to hear. The right ear drum was opaque, the left drum could not be visualized as the canal was closed with general inflammation of the skin. From the meatus a thin sero-purulent discharge issued. The ear was dry cleaned gently and ear drops of crystalline penicillin—2000 units to the cc.—were instilled every two hours.

He continued to improve and on February 2nd could tolerate daylight and radiant heat. The pressure bandages were removed, and he was lifted from the Stryker frame onto a bed enclosed by blankets placed over bedscreens. Electric lights were placed inside for extra warmth. A portable bed-high bath tub had been assembled by the hospital engineering staff and daily baths were given in a hypotonic saline solution. Passive and active movements, which had been encouraged from the beginning, now had a wider range.

On leaving the hospital on February 10th, he was feeding himself and walking around the room with assistance. The otitis media had healed and his hearing was normal. The skin remained red and sensitive to cold. The eyelashes were absent, the nails dry and discolored, and he was rapidly losing his hair. The temperature had returned to normal February 5th. The electrolytes on discharge were:

Urine	Serum
Na — 69 mEq. in 24 hours	Na — 137 mEq.
K — 84 mEq. in 24 hours	K — 5 mEq.
	Cl — 98 mEq.

Other points of interest were that the B.U.N. was 2 to 9 mgm.; the blood culture, fluid from blebs, scrapings from skin, grew neither bacteria nor virus. The blood pressure, of course, could not be recorded nor could too frequent entries be made on the one carefully cherished vein for blood studies.

In closing, many thanks are offered to the hospital medical and consulting staff who responded so generously to any call for assistance, and to the nurses who gave untiring service. Once again it was impressed on us why they are called "ministering angels."

## Article

### Alcoholism

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The disease of alcoholism is perhaps the number one public health problem in North America today. While there are in the U.S.A. some 700,000 victims of cancer and about 750,000 patients with tuberculosis, it is estimated that there are 4,000,000 alcoholics.

This extraordinarily large incidence is the best reason in the world for repeating to you today, what you may have heard or read many times during the past four or five years. The doctors must, of necessity, be in the forefront of the fight against this scourge, as they have been, so successfully in the past, against many other threats to the welfare of man.

Because of the magnitude and complexity of the problem, I will touch on only a few of the highlights of this subject, with the hope that the facts as presented, may stimulate you to increase your knowledge of this disease by reviewing at least some of the very extensive research that has been carried on during the last decade. Unless our physicians are ready and willing to teach their patients the dangers associated with the consumption of alcohol; unless they are prepared to educate, treat and rehabilitate our population, I am afraid we are on the road to that "Social Suicide" referred to by Cardinal Villeneuve when speaking on the effects of alcoholism in our country. The problems of treatment and rehabilitation will be discussed later by Doctor Matas. For my portion of this talk, I would like to divide my remarks into three groups of facts which may be labelled, the clinical, the social and the economic aspects of alcoholism.

#### 1. First a few words about alcohol itself.

It is surprising how often we hear people talk of alcohol as a stimulant, when all experts agree that it is a depressant. This popular misconception along with many others, stems, of course, from the very limited amount of scientific knowledge which has previously been available, about this universally used commodity. For thousands of years, controls of some sort have been applied to the use or abuse, the sale and distribution of alcohol with practically no scientific data being produced—controls which were necessary simply because of the social devastation caused by the abuse of the product.

Research into alcohol and alcoholism can be said to be a very recent innovation and the public has not yet had time to absorb, nor to benefit by the information which is now available. And so it still speaks of alcohol as a stimulant. The

experts, however, tell us that it is primarily a cortical depressant affecting the brain downward through its functional divisions in a regular and predictable pattern.

The first effect is noticeable as a loss of inhibitory control which may be regarded as both the cause and reason of moderate drinking. The average person in a gathering feels better after he has tucked a few drinks under his belt, simply because he has perhaps unconsciously, anaesthetized the top layer of his cortex—that layer which after centuries of development and a lifetime of training tells him to refrain from doing certain things.

This, as we shall see later, is the first sign of the social complications attributable to liquor.

If drinking is continued, the next layer of the cortex is depressed and the intelligence and intellect are affected. At this stage a person quite frequently becomes very positive in carrying out a reasoning process which is obviously false and which, when sober, he would recognize as false.

With continued consumption there is a deeper and deeper penetration of the cortex and the more vital functions are depressed. Reflex actions and co-ordination are first to disappear, followed in order by sensation and perception, voluntary muscular action and finally, with a sufficient concentration of alcohol, the very existence of the being may be destroyed by a cessation of what we may call the vegetative functions, respiration and circulation.

This briefly, is the main effect of alcohol on the human body. There are many side effects which occur, but its action on the central nervous system is, without doubt, the most damaging and the most important. One side effect which may be worth mentioning here, is the effect of alcohol on length of life. There is no real method yet devised for measuring this accurately, but if we accept the results of the combined experiences of all life insurance companies of America as a valid criterion, we are forced to the conclusion that the abuse, at least, of alcohol shortens the life expectancy.

Statistics compiled by these companies show that if the mortality of abstainers is taken as 100%, the moderate users will have a mortality of 111%, regular beer drinkers 130% and regular spirit drinkers 181%.

Let us remember then, that alcohol is a depressant, a narcotic which depresses the higher centres, and a factor which may double the expected relative mortality.

People have used it for centuries and will continue to use it. But the type of beverage has changed, and the change has been one which has produced increasingly tragic results. The advent of distillation, which may be called a modern



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development, has done more to increase alcoholism than all the drinking which went on previously. The rate of increase of alcoholics in Manitoba is from 8 to 9 times greater than the rate of increase of the whole population. Estimating the number of alcoholics, by the Jellinek formula, we find that in 1921 there were 2,300 in our province and in 1955 there were 10,300. It is predicted that by 1960 there will be 12,500. But this prediction was made before the new liquor law was passed, and I believe that with the increased number and types of outlets we may well add a few thousands to that estimate.

Contributing to this trend is the fact that more people are drinking every year. Observers have agreed that about 1% of the population are changing over every year from non-drinkers to drinkers. In 1955 it was estimated that only 27% of Manitobans could be classed as total abstainers. If our guesses are correct, then we can expect that in about 25 years there will be no one left who does not drink. How this will affect the rate of increase of alcoholism is easy to imagine.

An even more serious aspect however, is the fact, shown by successive surveys, that the age of drinkers is lowering as the incidence rises. More and more of our University and high-school students admit to drinking. This may be a sign that we are approaching the pattern of drinking established in certain parts of Europe where even babies are given their daily portions.

In France, for example, where this occurs they not only have the highest rate of consumption in the world, but also the highest rate of alcoholism. The two seem to go together, but we may be in a much more vulnerable position as far as alcoholism is concerned, because of our national habit of drinking spirits and beer rather than wine.

You may think that comparing Manitoba with France is a little far-fetched, and perhaps it is. Certainly we are not now in the same league at all. The average Frenchman over 15 years of age (male and female) drinks the equivalent of 3 gallons of absolute alcohol in a year, whereas his Manitoba counterpart manages to guzzle only about 1½ gallons. But give us time. The Manitoban has had up until now, only his home in which to drink, whereas in France there is a retail outlet for every 84 persons, plus 3 million licensed private stills.

We may never reach the big league of France or Italy, but I am certain that we will make a supreme effort to get into triple A ball when we open our new outlets. Since the repeal of prohibition in the U.S.A. the Americans have increased their batting average until they now hold third place in the world series. We will not be far behind in a few years.

We certainly have a good start with some 370,000 adults drinking roughly 12 million gallons of liquor a year. When we think that only 20 to 30 thousand are actually doing most of this

drinking it becomes almost impossible to realize that each one of these heavy drinkers is taking the equivalent of one glass of beer every half hour, 24 hours a day and 365 days a year.

No wonder we have a large number of alcoholics.

But even 10,000 alcoholics could by themselves be regarded as relatively minor problem if it were not for the fact that each one represents untold complications in our social structure.

It must be a rare occasion indeed when it can be said that a victim of alcoholism affected no one but himself. So rare perhaps, as to be nonexistent.

The usual pattern is rather one of social misbehaviours starting with irritated companions and progressing through insulted hosts to social disgrace, through absenteeism to lost jobs, through petty immoralities to illegitimate children, through family discord to divorce, through overspending to poverty, through begging to stealing, through traffic accidents to serious crime and through poor health to death.

Along the way the chronic alcoholic has brought misery and heartache to his parents, his wife and his children, has seriously hampered the operation of his place of business, has occupied, usually at public expense, hospital beds and police cells and has caused additional work and costs to most of the welfare organizations.

While it is impossible to ascertain with accuracy the number of marriages for example, which are broken up because of alcoholism, there is a striking relationship between the rates for both over the years. Divorces hit a peak of some 600 cases per year during 1946-47 when drunkenness and alcoholism were also at a very high level. A similar rate occurred in breakdown of families without divorce.

There is also noticeable, an increase in the juvenile delinquency rate where the use of alcohol is admitted to be a factor, either as being taken by the minor or by his parents.

33% of unmarried mothers reported in Manitoba are under 20 years of age and a very large proportion admit that the use of alcohol was directly responsible for their pregnancy. There are over 750 illegitimate births reported annually.

Convictions for drunkenness have increased to over 4,000 per year and while drunkenness must not be confused with alcoholism, it is nevertheless an indication of abuse.

Traffic deaths involving alcohol have doubled in the past 10 years and we can expect another sharp rise when more outlets are available.

3. And what of the cost of all this drinking in money? Perhaps we could say that the cost of the liquor itself is the least significant item; insignificant to the tune of \$45 million per year, but still, relatively speaking insignificant when compared to the total cost for all related services.

But maybe the word insignificant is too strong to use at that, when we think of 11% of permit holders spending over \$500 per year on spirits alone. This 11% represents people who according to the income tax returns earn less than \$5000.00 per year. Surely for them to spend 10% of their income on spirits (not counting beer and wine) must be a significant factor in their overall economic position!

If we could, however, assess accurately the costs of all social disruptions caused by alcohol, it is probable that we would regard the primary charges for the beverage itself to be only a small portion of the total expense.

Unfortunately there has never been devised a system whereby accurate figures could be obtained. Many attempts have been made and perhaps the best that can be said is that such figures are expert guesses. Relating these guesses to the Manitoba picture, we arrive at something like this:

Treatment of alcoholics .....	\$ 400,000
Absenteeism .....	5,000,000
Police and Welfare (Civic) .....	1,500,000
Crime and property damage .....	500,000
Traffic accidents .....	500,000
Family care .....	1,000,000
Children's Aid .....	500,000

This of course is only a partial list and takes into account only the well known services. How do you estimate the cost of all those hidden services which families continuously are rendering to persons directly or indirectly affected by an alcoholic? How do you estimate the cost of a broken family or of a heartbroken mother or of a dead husband?

Well now ladies and gentlemen, I think I have talked long enough and it is time to draw some conclusions from this hodge-podge of facts which I have given you.

You may believe from hearing my arguments that I am in favor of total abstinence (and that is absolutely right), but not in favor to the point of being a teetotaller myself. I have always heard

that one must have an exception that proves the rule and what would be more natural than to make of myself that exception. Furthermore, it is said that alcohol is the milk of old age and I am at the stage where occasionally I feel the need for milk.

But seriously, I have cut down on my consumption as I feel everyone will, who spends enough time studying all aspects of this distressing problem.

It is impossible to foretell who will become an alcoholic, but the evidence is so strongly in favor of those who are below 35 years of age and who make a practice of having fairly regular drinks, that it almost appears inevitable that total abstinence for this group must be advocated.

The Bracken Commission report is a plea, some 700 pages long, for total abstinence. It is realized however, that this is an impossible solution, simply because it will never happen. So we must be practical and find some other solution.

I believe that the one hope lies in education, an education which would be comprehensive, forceful and sustained. Only the educated can carry on education and in this fight against the abuse of alcohol we must enlist the help of all educated people. And first, we must educate the educated about this particular problem. Too many of them are still years behind in their knowledge of this disease. This is where the doctors can render a tremendous service to the population. A moment ago we were comparing our drinking pattern with that of France. We should not try to imitate France in this respect, but rather to imitate the doctors of France who have organized themselves in large groups to become the educators of the people on the problems of alcoholism.

The medical profession of Manitoba faces a challenge in this field today. It will never have a better opportunity of showing its true greatness than by applying all its efforts to reducing and eradicating the ill effects of alcohol in our population.



## Editorial

S. Vaisrub, M.D., M.R.C.P. (Lond.), F.R.C.P. (C.), F.A.C.P., Editor

### Plato and Presley

The ancestry of many of our modern sciences is sadly lacking in respectability. Their family trees, rooted in the murky soil of primitive ignorance and superstition, are "shady" in the unflattering colloquial sense of the word. Take Chemistry for instance. Is she not the daughter of disreputable Alchemy, born amidst flasks and retorts filled with elixirs of life and youth, and weird potions? Is Astronomy not the offspring of infamous Astrology, suckled and raised by the soothsayers and fortune tellers? Even noble Medicine cannot deny its blood ties with ancient Herbalism and Witchcraft.

Perhaps the most striking example of the "other side of the track" origins of a modern science is Biotypeology — the science of human constitution, which purports to correlate the human frame with character and proneness to disease. Biotypeology is a direct descendant of Somatomancy—the pseudo-science of divination from the human body. It may be of some interest as well as profit to take a backward look at this disreputable ancestor. Some of the characteristics of the child may be traced back and perhaps better understood. Indeed, in the process of reviewing, may emerge a moral and an implication for modern medicine.

Divination from the human body has developed through history along two main lines—the supernaturally oriented astral somatomancy and the so-called "natural" somatomancy. Astral somatomancy was closely linked with astrology, and concerned itself with the forecast of future events, as well as reading of character from the correlation of some part of the human body with the stars. Its branches—chiromancy, pedomancy, and onychomancy, have flourished through the ages, and are still highly popular in primitive communities, as well as in some fashionable circles of Hollywood society. Natural somatomancy, in contradistinction, bore no relation to astrology. Nor did it deal with prophecy. Its sole interest lay in the divination of character from the clues offered by the human body.

Unlike astral somatomancers who had a guiding principle in the belief that the human body is a miniature universe, a microcosmos with features closely corresponding to the macrocosmos of the stars and the planets, their "natural" confreres had no such unifying concept. As a result their approaches and methods varied greatly. Some adopted the pseudo-inductive method of postulating rules based on random observation. Having observed a certain facial feature in a person with a certain quality of character, they would assume that all people with the same feature have the corresponding quality. One of these "observa-

tions" made by Lavater in the eighteenth century to the effect that women with brown hair warts on their chins are industrious and overly amorous has resulted, undoubtedly, in many disappointments in marriage based on false hopes and great expectations.

Other natural somatomancers followed the method of theriologic physiognomy. They scrutinized the human face for features resembling those of animals. Similarities were indicative of "sympathy" with the animal, i.e. possession of qualities which are usually ascribed to the animal which the particular face resembled. A leonine face was a sure sign that its possessor was a man of great courage with the heart of a lion. An asinine face, by contrast, carried with it implications that were not at all flattering. Canine, equine, bovine faces had their assigned places in the theriologic classification. The ape, curiously enough, did not earn special mention. It would almost seem that to a thereiologic physiognomist the Darwinian theory of human descent from the anthropoid ape would have looked no more plausible than that of descent from any other animal, since man appeared to resemble them all.

Another approach, smacking of the "modern," was that of Quinetelet (16th century), who introduced the concept of the "average" man (*homme moyen*)—a harmoniously balanced moral-mental-aesthetic man. Any deviation from the average was a sign of inferiority. The difficulty of establishing criteria of normality (emphasized by Dr. J. Maclaren Thompson in his paper on "What is Normal?" published in this issue) did not, apparently, trouble Quinetelet and his followers.

The human visage was by no means the only source of divination of natural somatomancy. A similar purpose was served by pupils, warts, moles and cranial protuberances. The latter, particularly, enjoyed great popularity and even a measure of "scientific" sanction at the turn of the 18th century. In 1796 Dr. John Gull of Vienna postulated that bumps on the head represented over-development of functions of the underlying cerebral regions. The topographical assignment of mental functions by Gull would no doubt serve only to amuse the modern reader, as would, of course, all the other absurdities of somatomancy. Indeed, the latter is no longer taken seriously by anyone but the ignorant and the gullible.

Unlike the quasi-science of somatomancy, its offspring — the science of biotypeology — is taken quite seriously. Its exponents, notably Kretschmer, Draper and Sheldon, had conferred upon it an air of utter "respectability." Their observations, measurements, statistical studies and correlative

inferences have resulted in systems of classification, which are very impressive. Draper divided mankind into peptic ulcer, gall bladder and pernicious anemia types of habitus, each with corresponding psychological features and distinct physical characteristics, which include such fine detail as tooth pattern and the shape of the nails. Kretschmer postulated three types of temperament — the cyclothymic, the schizothymic and the collodethymic, which correlate with three types of habitus — the psychosomatic, the leptosomatic and the athletosomatic. Sheldon described three morphological types — the ectomorphic, mesomorphic and endomorphic, with matching cerebrotonic, somatotonic and viscerotonic temperaments. His taxonomy is the one that is currently enjoying the greatest popularity.

The differences between the various systems of typing are more those of terminology and detail than of fundamental concepts. Most of these classifications are based on three variants of physique — the longitudinal, the lateral and the average (?) normal. The longitudinal type has been designated by various schools as linear, micro-splanchnic, septosome, stenoplastic, hypotonic, hypov vegetative, asthenic, phthisic and ectomorphic. The lateral has been termed in turn macrosplanchnic, sthenic, hypertonic, apoplectic and mesomorphic. The average normal (?) can also boast of an impressive number of labels.

The various schools of biotypology have many other features in common. They are fond of extensive and elaborate measurements, abundant pictorial or photographic illustrations, subjective assessments and euphonious terminologies. They share the belief that the body is the starting point of character and personality. They bear, not unexpectedly, many resemblances to their parent schools of somatomancy.

The fact that biotypology wears the cloak of modernity does not render its concepts invulnerable to criticism. Indeed, there is nothing axiomatic in the assumption that physique is the determinant of temperament and disease. Even if there is a definite correlation between them, the relationship is not necessarily that of cause and effect. It is not compellingly inevitable that a tall, thin, asthenic, lineal "ectomorph" must be shy, intellectual, introverted, and prone to peptic ulceration, while his rubicund, sthenic "mesomorph" sister is destined to be a pleasure seeking glutton with a gallbladder full of stones. In fact there is no sound logical basis for reviewing the complex problem of biological make up in terms of "types."

If logic cannot verify the validity of the cause and effect relationship between morphology and temperament, can statistics confirm, at least, a de facto correlation between them? The answer is not at all easy. The many variables involved in statistical studies of this scope, as well as the unavoidable subjective element entailed render the evidence less than convincing.

Neither the thoughtful analyst of statistics acquainted with these pitfalls, nor the careful observer of humanity, confronted with inconsistencies and contradictions, will be able to accept the evidence without reservations. The doubting Thomas, of course, will have a field day. He will point his finger at many historic personages who do not conform to the prescribed patterns of typology. He may well ask whether Winston Churchill is a rubicund, cherubic pleasure-bent viscerotonic endomorph, an action loving, aggressive somatotonic mesomorph, or, perhaps, a cerebrotonic intellectual who failed to acquire the correct frame for his temperament. He may ponder about Casanova, Don Juan and other great lovers of history. Were they viscerotonic mesomorphs in search of pleasure, somatotonic ectomorphs hunting for their prey, or perhaps a new somatic type — the gonadotonic genitomorph? He may wonder whether the beauty of a painting is necessarily determined by the frame that encloses it.

Thus may the sceptic ponder over the philosophical assumptions and the practical conclusions of Biotypology. The bemused physician, however, is only concerned with their applicability to medicine. He is interested only in the clues that they may offer toward the predictability of diseases or their diagnosis. Are these clues worth pursuing? Perhaps, in a limited way they are. By and large, however, the careful clinician relies on history, physical and laboratory findings, rather than on theories of constitution and diathesis. He is quite prepared to diagnose apoplexy or gall bladder disease in a thin peptic ulcer type, and is not at all surprised to find that his "fair, fat and forty" female patient has peptic ulcer. Interested as he may be in theories of habitus and constitution, he does not permit them to become a primary consideration in his work. He knows only too well that sweeping generalizations are often exercises in over-simplification at the expense of truth.

Streams of character run deep—their sources mysterious and courses unpredictable. Their depths cannot be fathomed with ordinary measuring tools. Plato and Presley, Spinoza and Rubirosa cannot be compared, contrasted or comprehended in terms of Biotypology.

Ed.

## Association Page

 Reported by M. T. Macfarland, M.D.

### The Responsibilities of the Medical Profession in the Use of X-Rays and Other Ionizing Radiation\*

1. The United Nations General Assembly, being aware of the problems in public health that are created by the development of atomic energy, established a Scientific Committee on the Effects of Atomic Radiation. This Committee has considered that one of its most urgent tasks was to collect as much information as possible on the amount of radiation to which man is exposed today, and on the effects of this radiation. Since it has become evident that radiation due to diagnostic radiology and to radio-therapy constitutes a substantial proportion of the total radiation received by the human race, the Committee considers it desirable to draw attention to information that has been obtained on this subject.

2. Modern medicine has contributed to the control of many diseases and has substantially prolonged the span of human life. These results have depended in part on the use of radiation in the detection, diagnosis and treatment of disease. There are, however, few examples of scientific progress that are not attended by some disadvantages, however slight. It is desirable therefore to review objectively the possible present or future consequences of increased irradiation of populations which result from these medical applications of radiation.

3. It is now accepted that the irradiation of human beings, and particularly of their germinal tissues, has certain undesirable effects. While many of the somatic effects of radiation may be reversible, germinal irradiation normally has an irreversible and therefore cumulative effect. Any irradiation of the germinal tissues, however slight, thus involves genetic damage which may be small but is nevertheless real. For somatic effects there may however be thresholds for any irreversible effects, although if so these thresholds may well be low.

4. The information so far available indicates that the human race is subjected to natural radiation,<sup>1</sup> as well as to artificial radiation due to its medical applications, to atomic industry and its effluents and to the radioactive fall-out from nuclear explosions. The Committee is aware of the potential hazards that such radiation involves, and it is collecting and examining information on these subjects.

5. The amount of radiation received by the population for medical purposes is now, in certain countries, the main source of artificial radiation and is probably about equal to that from all

natural sources. Moreover, since it is given on medical advice, the medical profession exercises responsibility in its use.

6. The Committee appreciates fully the importance and value of the correct medical use of radiation, both in the diagnosis of a large number of conditions, in the treatment of many such diseases as cancer, in the early mass detection of conditions such as pulmonary tuberculosis, and in the extension of medical knowledge.

7. Moreover, it appreciates fully the contribution of the radiological profession, through the International Commission on Radiological Protection<sup>2</sup> in recommending maximum permissible levels of irradiation. As regards those whose occupation exposes them to radiation, the establishment of these levels depends on the view that there are doses which, according to present knowledge, do not cause any appreciable body injury in the irradiated individual; and also on the consideration that the number of people concerned is sufficiently small for the genetic repercussions upon the population as a whole to be slight. Whenever exposure of the whole population is involved, however, it is considered prudent to limit the dose of radiation received by germinal tissue from all artificial sources to an amount of the order of that received from the natural background radiation.

8. It appears most important therefore that medical irradiations of any form should be restricted to those which are of value and importance, either in investigation or in treatment, so that the irradiation of the population may be minimized without any impairment of the efficient medical use of radiation.

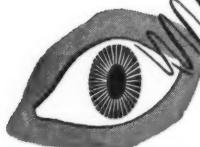
9. The Committee is consequently anxious to receive information through appropriate governmental channels as to the methods and the extent by which such economy in the medical use of radiation can be achieved, both by avoiding examinations which are not clearly indicated and by decreasing the exposure to radiation during examinations, particularly if the gonads, or the foetus during pregnancy lie in the direct beam of radiation. It seeks, in particular, to obtain information as to the reduction in radiation of the population which might be achieved by improvements in instrument design by fuller training of personnel, by local shielding of the gonads, by choosing appropriately between radiography and fluoroscopy, and by better administrative arrangements to avoid any necessary repetition of identical examinations.

10. The Committee also seeks the co-operation of the medical profession to make possible an estimate of the total radiation received by the germi-

\*Statement by the United Nations Scientific Committee on the Effects of Atomic Radiation.

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the hazard of  
HEMORRHAGE**



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Rutin with Vitamin C

FOR THE PREVENTION OF VASCULAR ACCIDENTS  
ASSOCIATED WITH INCREASED CAPILLARY FRAGILITY

#### "CERUTIN"

Tablet No. 388 "R-60"

Rutin N.F.....	20 mg.
Vitamin C.....	25 mg.

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Vitamin C.....	120 mg.

**DOSAGE:** One tablet 3 times daily.  
Packaged in bottles of 40 and 100.

"Although no significant improvement in vision or decrease in retinopathy was observed in diabetes after rutin therapy, it may be significant that no loss of vision or increase in retinopathy occurred during a period of 10 to 12 months' treatment".<sup>1</sup>

The results of treatment with Cerutin are not dramatic. It is necessary to adopt a long range viewpoint. Cerutin should be prescribed for every patient with hypertension and diabetes, with the hope that capillary rupture in retina and brain may be avoided or postponed.

1. The Effective Use of Rutin. Donegan and Thomas, Am. J. Ophthalm., 31:671, 1948.

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nal tissue of the population before and during the child-bearing age. It considers it to be essential that standardized methods of measurement, of types at present available, should be widely used to obtain this information and it emphasizes the value of adequate records, maintained by those using radiation medically, by the dental profession, and by the responsible organizations in allowing such radiation exposure to be evaluated. The Committee is convinced that information of this type will make it possible to decrease the total medical irradiation of the population while preserving and increasing the true value of the medical uses of radiation.

#### References

1. The radiation due to natural sources has been estimated to cause between 70 and 170 millirem of irradiation to the gonads per annum in most parts of certain countries in which it has been studied, although higher values are found locally in some areas. See the reports "The hazards to man of nuclear and allied radiations" published by the United Kingdom Medical Research Council in June, 1956, in which also the millirem is defined; and from information submitted to the Committee.
2. See the report of the International Commission on Radiological Protection (published in the British Journal of Radiology — Supp. 6, of December, 1954 — in the *Journal français d'électro-radiologie* — No. 10, of October, 1955 — etc. and revised in 1956).

### T.C.M.P. Meeting Report

#### 1. Trans-Canada Medical Plans

A meeting of the T.C.M.P. Commission was held in Toronto on January 11th, 1957 to discuss arrangements for pre-paid medical care for members of the Federal Civil Service and their dependents. Manitoba was well represented there by your president, Dr. J. E. Hudson; Dr. J. C. MacMaster, Medical Director of M.M.S.; Mr. G. R. Dinney, Actuary for M.M.S.; Dr. P. H. McNulty, M.M.S. representative to T.C.M.P.; Dr. A. Hollenberg representing M.M.S.; Mr. M. Neaman, Honorary Treasurer of M.M.S.; Dr. M. R. MacCharles, who was selected as the representative of M.M.A.; and Dr. R. W. Richardson, the C.M.A. representative to T.C.M.P.

Up to the time of writing, it has not been possible to announce the completion of the negotiations: this will have to await a future edition of the Review.

It is now of course common knowledge that T.C.M.P. was instrumental in arranging the contracts by which the non-operating railway employees and their dependents will receive medical care on a pre-paid basis. It becomes increasingly evident that the medical profession must be prepared to bring to fruition the principles of pre-paid medical care on a national basis, dealing with groups of national scope and importance as well as it has done in the original provincial medical plans.

2. Your Executive Committee is pleased to announce that it has been able to give special recognition to the members of its Special Commission. Each of the Commission members has received a handsome desk set, as a token of recog-

nition of the vast amount of work done by the Commission. In addition, the Chairman, Dr. P. L'Heureux will be requested to attend a future medical meeting as the representative of M.M.A., with expenses defrayed by the Association.

3. At the regular meeting of the M.M.A. Executive Committee on January 20th, 1957, a question arose regarding the position of the Manitoba Hospital Service Association in regard to payments of fees by M.H.S.A. to physicians for reports about the health or illnesses of its subscribers. Apparently some practitioners have taken the view that a correspondence fee should be charged, as it might be for any insurance company requesting information about a patient, either before enrollment or with regard to claims arising out of hospitalization. It was pointed out that the Executive had passed a motion in February 1956 as follows: "That this Executive recommend to the profession that our right to charge for reports from the sister organization of M.H.S.A. in connection with the pre-enrollment and reports, be waived." This was contained in the Committee Reports for 1956 and was passed at the Annual Meeting of M.M.A. in October 1956. The Executive does not contemplate changing this resolution.

4. At the Annual Meeting of M.M.A. in October 1956 the Report of the Special Commission was adopted. One provision calls for the setting up of a Professional Policy Committee. The representatives approved by the Executive Committee are as follows: Doctors F. G. Allison, W. J. Hart, S. Israels, M. K. Kiernan, D. N. C. McIntyre, W. G. Newman, Dwight Parkinson, M. J. Ranosky, O. A. Schmidt, and A. J. Winestock.

The Committee has held its first meeting under the Chairmanship of Dr. J. E. Hudson. The purpose was to elicit nominations for the post of permanent chairman of the Committee. While several names were suggested, no appointment has been made at the time of submission of this report.

#### 5. Public Relations Committee

Dr. F. G. Allison has accepted the Chairmanship of this committee. Doctors Athol Gordon and R. H. McFarlane will act as members.

### Active Division of the Canadian Cancer Society to be Formed in Manitoba\*

A goal which was described as "one we have all been hoping and working to obtain for many years" was reached at the October meeting of the Canadian Cancer Society national board of directors when it was decided to accept the Manitoba Cancer Institute's invitation to form an active division of the Society in Manitoba.

An exchange of letters between Mr. P. Beachell, chairman of the board of the Manitoba Cancer Institute, and Mr. Carl B. French, chairman of the

Society's executive committee, outlining the proposed agreement between the two bodies was presented to the directors. It was decided that an active division of the Society be formed to take over from the Manitoba Cancer Institute the responsibilities of education, welfare, support of clinical research and grants to the National Cancer Institute of Canada. A sum of \$30,000 was voted by the directors to enable this work to go on unabated until funds were available from the Manitoba Division's campaign next April.

Specifically the historic motion of the board stated:

(a) That the Society accept the invitation of the Manitoba Cancer Institute, and assume the responsibility of organizing an active Division to pursue a programme comparable to that carried on elsewhere in Canada by the Society;

(b) That, when formed, the Manitoba Division of the Society should obtain its funds by separate appeals throughout Manitoba during the month of April in each year;

(c) That, as from April 1st, 1957, the Society should assume responsibility for the education programme and welfare services in Manitoba, the funds for which should be made available by the National Office until such time as the newly formed Division holds its first financial campaign;

(d) That, as from April 1st, 1957, the Canadian Cancer Society should support such clinical research in Manitoba as is within its over-all policy;

(e) That the assessments on the Manitoba Division of the Society for the support of the National Programme, and the National Cancer Institute, should be deferred until the new Division is well established and able to conduct its own appeal.

Expressing the views of the entire board, national president Bruce Buckerfield stated that "this long-sought development attests both to the successful discharge of the Society's obligations in the past and to its even greater work and influence in the future."

\*Reprinted from Canadian Cancer Society Newsletter, Vol. 10, No. 1, December-January, 1956-1957.

### Medical Care for United States Military Dependents

United States Public Law No. 569 entitled, "The Dependents' Medical Care Act," became effective on December 6, 1956. The law will affect the dependents of United States military personnel in Canada and the Canadian physicians whom they consult.

The provisions of the Bill allow the dependents to go to any physician or hospital of choice. Any fees for medical care will be processed through Detachment No. 1, Headquarters, Air Defense Command, 119 Ross Avenue, Ottawa 3, Ontario.

Information is available in the Association office.

M. T. Macfarland.

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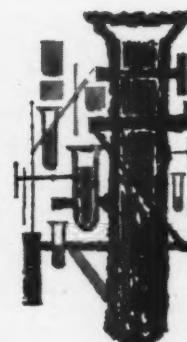
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Dosage is only one capsule daily

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Vitamin B <sub>12</sub> with Intrinsic Factor Concentrate	1 Oral Unit
Vitamin B <sub>12</sub> (additional)	15 mcgm.
Powdered Stomach	200 mg.
Ferrous Sulfate Exsiccated	400 mg.
Ascorbic Acid (C)	150 mg.
Folic Acid	4 mg.



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## Social News

Reported by K. Borthwick-Leslie, M.D.

I do hope I'm not getting seriously sunburned on my supposed tour, "having a glorious time in Honolulu" this week. Odd, but the snow packed lawn out my windows, not like "the rolling surf" in the least. Sorry, but I'm afraid my winter holiday is Fort Garry, not Honolulu. However I'm going to love the expression on Helen Marlatt's face when she hears that she is me. You should see her in a one piece bathing suit on a surf board, and that is where she is at this moment, I bet.

Dr. M. R. MacCharles has been appointed chairman of the Manitoba Medical Service board, succeeding Dr. W. Tisdale, and probably inheriting even more headaches than Dr. Tisdale had, what with the inevitable cut in the Doctors' fees and National Health looming more ominously. Good luck, Mac, and you do have staunch support. Executive committee of: Honorary secretary, Dr. T. E. Holland; Honorary treasurer, Mr. Morris Neaman; Vice chairman, Dr. A. R. Tanner; Executive directors, Dr. J. C. MacMaster, Dr. A. Hollenberg and J. R. Stuart; Medical members of the board are: M. R. MacCharles, B. D. Best, A. T. Gowron, A. Hollenberg, L. R. Rabson, K. R. Trueman, S. A. Boyd, D. J. Hastings, M. S. Hollenberg, D. N. C. McIntyre, C. B. Schoemperlen, C. W. Clark, T. E. Holland, Eyjolfur Johnson, P. H. McNulty and A. R. Tanner.

Dr. R. A. Macpherson has been named chairman of the medical executive committee of the staff of the Winnipeg General Hospital. Dr. Norman L. Elvin is vice chairman and Dr. Murray Campbell, secretary.

Dr. L. R. Rabson is the new President of the Honorary Attending Medical Staff of St. Boniface Hospital, with an excellent slate of officers:  
Dr. A. C. Abbott, 1st Vice President.  
Dr. W. McKinnon, 2nd Vice President.  
Dr. M. Ranovsky, Secretary.  
Drs. Ross Willows and Paul Green, members at large.

Dr. Chas. M. Burns, F.R.C.S. (C) has returned from a year as Senior Resident in Surgery at Toronto General Hospital. Now in practice with his father at 232 Medical Arts.

The General Practitioners' annual Valentine Banquet and Dance was so much of a success that the Royal Alexander Hotel practically went into hysterics looking for tables, chairs, etc., and believe it or not, hadn't enough "rolls." The guests did seem to acquire the odd "bun." Congratulations to the committee in charge, and sincere congratulations to Dr. Robert Helgason, Glenboro, Man., the popular choice as recipient of the annual Scholarship, presented by the College of General Practitioners and donated by the Institute for Advancement of Medical Teaching and Research.

Dr. and Mrs. Alex Guttman are enjoying a trip to Mexico City, where Dr. Guttman is presenting a paper before the World Congress of International College of Surgeons.

At the first Convention of the Canada College of General Practice, in Montreal, Dr. Jack Mc-Kenty took over as President of the College, with Dr. P. B. Rose, Edmonton, as President-elect and Dr. E. C. McCoy, Vancouver, Chairman of the board of representatives.

More reports later from the numerous members who are attending the Convention.

Dr. W. Gordon Lamberd has been awarded a 12 month Fellowship, by the Smith, Kline and French Foundation Fellowship in Psychiatry. Dr. Lamberd was appointed a Fellow in Psychiatry at the Mayo Clinic, Rochester, Minn.

Col. Carl S. Wood, O.B.E., C.D., Prairie Command medical officer since 1951, is retiring from the R.C.A.M.C. April 1st. Col. Wood joined the permanent force in 1935, and has served Canada and us in numerous posts, all in his own ultra-efficient and humane manner. He will be sadly missed, both in military and civilian circles. The very best in Civvyland, Carl.

The annual meeting of the Manitoba Division of the Federation of Medical Women of Canada will be held March 12th. Reception in honour of this year's women graduates at the home of President Dr. Dorothy Hollenberg, dinner at Llentrad Harbor.

Sincere sympathy is extended to the relatives and friends of Dr. (Major) Noel R. Rawson, O.B.E., retired Public health officer, who died last week, as the result of a car accident.

The Medical Stork has not been too active recently. To those all important new members, welcome!

Dr. and Mrs. H. W. Bottomley announce the arrival of "No. 4," Linda Jean, February 17, 1957.

Dr. and Mrs. J. H. Lindsay welcome a son, Duncan Todd, February 5, 1957.

Dr. and Mrs. W. E. Abbott announce the arrival of Sharon Elizabeth, February 6, 1957.

Dr. and Mrs. J. A. Peters, a daughter, Ingrid Louise, February 6, 1957.

Dr. and Mrs. J. D. Thordarson, a son, Kelvin Trent, January 31, 1957, at Maddock Memorial Hospital.

Dr. and Mrs. F. P. Dayle, St. Anne, Man., announce the arrival of their third daughter, Elaine Margaret, February 8, 1957.

Income Tax looms up, and reports this warning: Having found in a bachelor's tax return exemption for a "dependent child" the form was returned with the note: "Isn't this a mistake?" The sheet came back with the brusque remark: "You're telling me."

## RX INFORMATION

**INDICATIONS:** Menopause, prostatic carcinoma, postpartum breast engorgement.

**COMPOSITION:** Each capsule, or 1 cc. contains 2 mg. of TACE (Chlorotrianisene).

**SAFETY:** TACE produces a minimal incidence of withdrawal bleeding so commonly observed following estrogen therapy of the menopause. In both sexes, TACE is generally well tolerated, thus minimizing such side effects as nausea, vomiting and fluid retention.

**DOSAGE:** For relief of menopausal symptoms, 2 TACE Capsules, or 2 cc. TACE Oral Drops (in cold water), daily for thirty days, is generally a course of therapy. In severe cases when symptoms recur, additional short courses of TACE may be required. For postpartum breast engorgement, 4 TACE Capsules daily for seven days. For palliative control of prostatic carcinoma, 1 or 2 TACE Capsules daily.

**SUPPLIED:** In bottles of 60 and 300 capsules, in 30 cc. bottles with calibrated dropper. One bottle of capsules or 2 bottles of oral drops usually suffice for a course of therapy.

**References:** 1. Greenblatt, R. B., and Rosner, N. H.: Am. J. Obst. & Gynec., 63:1161, June, 1952.  
2. Ausman, S.: New England J. Med., 253:322, 1955.  
3. Ausman, S. B., Chet, & Gen., 1:20, 1948.  
4. Ausman, S. B.: J. Met. Soc. N.J. (abridged).

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TACE... released  
like a Hormonal  
secretion for your  
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TACE, by virtue of its  
storage in body fat,<sup>1</sup> simulates  
the hormonal secretion of the  
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TACE gives smooth  
lasting control of symptoms  
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A smoother adjustment to the menopause  
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DEAL "FAT-STORED ESTROGEN"

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SODIUM CHLORIDE

TACE CAP. 100.

FOR THE CONTROLLED TREATMENT OF MENOPAUSE

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**Department of Health and Public Welfare**  
**Comparisons Communicable Diseases — Manitoba (Whites and Indians)**

DISEASES	1956		1955	
	Jan. 1 to Jan. 26, '56	Dec. 2 to Dec. 29, '56	Jan. 1 to Jan. 26, '56	Dec. 4 to Dec. 31, '55
Anterior Poliomyelitis	2	2	0	2
Chickenpox	89	154	84	130
Diphtheria	5	4	0	0
Diarrhoea and Enteritis, under 1 year	0	11	4	26
Diphtheria Carriers	3	1	0	0
Dysentery—Amoebic	0	0	0	0
Dysentery—Bacillary	0	0	1	0
Erysipelas	0	2	3	1
Encephalitis	0	0	0	0
Influenza	0	5	5	8
Measles	236	167	138	31
Measles—German	9	4	5	3
Meningococcal Meningitis	0	1	1	2
Mumps	37	97	112	110
Ophthalmia Neonatorum	0	0	0	0
Pneumonia, Lobar	0	0	0	0
Puerperal Fever	0	0	0	0
Scarlet Fever	4	9	18	13
Septic Sore Throat	0	4	0	0
Smallpox	0	0	0	0
Tetanus	0	0	0	0
Trachoma	0	0	0	0
Tuberculosis	18	69	12	0
Typhoid Fever	0	0	0	0
Typhoid Paratyphoid	0	0	1	1
Typhoid Carriers	0	0	0	0
Undulant Fever	0	0	0	1
Whooping Cough	12	15	9	38
Gonorrhoea	64	94	99	104
Syphilis	5	10	3	6
Jaundice, Infectious	18	43	12	31

Four Week Period January 1st to January 26th, 1957

DISEASES	*850,000 Manitoba	*860,965 Saskatchewan	*5,404,923 Ontario	*2,652,060 Minnesota
(White Cases Only)				
*Approximate population				
Poliomyelitis	2	1	1	
Chickenpox	89	2	3458	†
Diarrhoea & Enteritis under 1 yr.	—	—	†	†
Diphtheria	5	—	2	2
Diphtheria Carriers	3	—	—	—
Dysentery—Amoebic	—	—	—	—
Dysentery—Bacillary	—	9	3	5
Encephalitis Epidemica	—	—	1	—
Erysipelas	—	—	1	†
Influenza	—	—	3	2
Jaundice, Infectious	69	48	45	
Measles	236	284	2098	363
German Measles	9	—	213	†
Meningitis Meningococcal	—	—	6	—
Mumps	37	—	1180	†
Pituitacosis	—	—	—	1
Puerperal Fever	—	†	—	†
Scarlet Fever	4	6	283	100
Septic Sore Throat	—	5	6	55
Smallpox	—	—	—	—
Tetanus	—	—	—	—
Trachoma	—	—	—	—
Tuberculosis	18	19	67	20
Typhoid Fever	—	—	4	—
Typhoid-Paratyphoid	—	—	—	—
Typhoid Carrier	—	1	—	—
Undulant Fever	—	—	4	—
Whooping Cough	12	4	186	1
Gonorrhoea	64	—	104	†
Syphilis	5	—	21	†

†These figures were not given on their reports.

**DEATHS FROM REPORTABLE DISEASES**

January, 1957

**Urban**—Cancer, 54; Diphtheria, 2; Pneumonia, Lobar (490), 8; Pneumonia (other forms), 19. Others deaths under 1 year, 14. Other deaths over 1 year, 211. Stillbirths, 16. Total, 324.

**Rural**—Cancer, 17; Pneumonia, Lobar (490), 3; Pneumonia (other forms), 7; Tuberculosis, 3. Other deaths under 1 year, 9. Other deaths over 1 year, 106. Stillbirths, 3. Total, 148.

**Indians**—Pneumonia (other forms), 1. Total, 1.

**Poliomyelitis**—Two cases have been reported to us so far in 1957, only one case having paralysis and this of a mild degree.

**Diphtheria**—A second smaller peak came at the beginning of the year after a short quiescent period. However, no cases have been reported since January 21st so it is hoped it is again quietening down.

**Scarlet Fever Toxin**—Please note that Connaught Laboratories are no longer making this material and it has consequently been taken off our free list. No further orders can be filled.

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## Future Events

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### **Annual Refresher Course**

**April 9th, 10th, 11th, 1957**

**Guest Speakers:**

Dr. Lawrence M. Randall, Rochester, Minn.

Dr. D. R. Webster, Montreal, P.Q.

Tuesday, April 9th, Symposium on "Obstetrics and Gynecology"

Arranged by Committee on Post Graduate Studies,  
University of Manitoba

### **Institute on Newborn and Premature Care**

**April 12th and 13th, 1957**

**Children's Hospital, Winnipeg**

**Guest Speaker:**

Prof. Howell Wright, University of Chicago

This is the first annual institute held under the auspices of the Dept. of Pediatrics, University of Manitoba and School of Nursing, Winnipeg General Hospital. Members of the profession are invited to attend this institute without charge.

### **Orthopedic Course**

A course on the Orthopedic Aspects of the Treatment of Rheumatic Disorders will be given for the first time by the New York University Post-Graduate Medical School for three successive Thursdays, from March 19 through April 2.

The basic orthopedic principles as they are applied in the treatment of rheumatic diseases will be reviewed. This course will include a well-rounded correlation of the means of orthopedically preventing and correcting deformities caused by rheumatic disorders. Office practice will be stressed. Extensive clinical material from the wards of Bellevue and University hospitals will be demonstrated.

For further information write: The Dean, NYU Post-Graduate Medical School, 550 First Avenue, New York 16, N.Y.

### **Cardiology Course**

Two intensive review courses in cardiology for general physicians and internists are being offered by the New York University Post-Graduate Medical School on a full-time and part-time basis.

The part-time session (5410-A) will consist of seven meetings, from 2 to 5 p.m., on Thursdays, April 11 to May 23. In this course emphasis will be placed on clinical cardiology, with a detailed review of all the major forms of heart disease.

The full-time course (549-A) will start on May 6 and end May 24. It will include an intensive review of the basic knowledge and the recent advances in the diagnosis and treatment of heart

disease. Electrocardiography is an integral part of the course and emphasis is to be placed on the modern electrophysiology of the heart.

For further details write: The Dean, Post-Graduate Medical School, 550 First Avenue, New York 16, N.Y.

### **Pediatric Refresher Course**

The following short refresher courses will be given at The Children's Hospital of Philadelphia in May and June, 1957:

**1. Pediatric Advances for Pediatricians and General Practitioners**

May 27 through May 31, 1957. Conducted by the Staff of the Children's Hospital of Philadelphia, in collaboration with the Department of Pediatrics of the University of Pennsylvania and the Staff of the Camden Municipal Hospital. Tuition — \$110.00.

**2. Practical Pediatric Hematology**

June 3, 4 and 5. Conducted by Irving J. Wolman, M.D., and other members of the Hematology Department of the Children's Hospital, under the auspices of the Graduate School of Medicine, University of Pennsylvania. Tuition — \$75.00.

**3. Blood Group Incompatibilities and Erythroblastosis Fetalis**

June 6 and 7. Conducted by Neva Abelson, M.D., and Thomas R. Boggs, Jr., M.D., of the Philadelphia Serum Exchange of the Children's Hospital of Philadelphia, under the auspices of the Graduate School of Medicine, University of Pennsylvania. Tuition — \$50.00.

Inquiries should be addressed to Irving J. Wolman, M.D., Children's Hospital of Philadelphia, 1740 Bainbridge Street, Philadelphia 46, Pa.

### **New Schering Award Contest**

Three increasingly important branches of medicine — cardiology, mental disease, and the treatment of eye disorders — have been selected as topics for the 1957 Schering Award Contest, according to Award Committee Chairman Dr. Chester B. Szmal. Dr. Szmal has announced that the new contest is now under way.

The competition which is open annually to all medical students in the United States and Canada, invites them to submit papers on three topics of current medical significance. Established in 1940, it has built up a continuing program designed to increase future contributions to professional literature by stimulating student interest in medical communications.

An important new development this year is that of a total of \$4500 in cash prizes will be awarded — double the amount offered in any previous year. A \$1000 first prize and a \$500

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Agarol is suited to the acutely constipated patient who can neither take time off for a "purge", nor time out to answer the sudden urge induced by strong laxatives: the head of a one-man business; the executive committed to a day of important business conferences; the man on an outdoor job; people in the theatre, the pulpit, the factory, the home. For all who need relief of temporary acute constipation, pleasant tasting Agarol provides positive results without urgency.

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**Dosage:** On retiring,  $\frac{1}{2}$  to 1 tablespoonful taken in milk, water, juice or miscible food. Repeat if needed the following morning two hours after eating. Contraindications: symptoms of appendicitis; idiosyncrasy to phenolphthalein.

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second prize will be awarded for the best papers on each of the three selected topics. In addition, professionally useful gifts will be offered for other outstanding papers. Award-winning papers will be selected by a group of judges who are authorities in their particular field.

In addition this year a new schedule has been initiated in order to speed up announcement of results in the contest. Dr. Szmal reports: Winners of the 1956 contest, now over, will therefore be announced on or about November 15, 1956.

The three subjects for 1957 are:

1. Incidence of Various Types of Cardiovascular Diseases by Age Group in the Male and the Female.
2. Recent Trends in Corticosteroid Therapy for Ocular Disorders.
3. Recent Advances in the Biochemical Aspects and Treatment of Mental Disease.

Literature and entry forms are being distributed in medical schools. Students interested in participating should submit their entry forms by January 1, 1957.

A significant feature of this Award, according to Francis C. Brown, president of Schering Corporation, is that during the past several years a growing number of Schering Award winning papers have been published in professional journals. The calibre of work by many participating students has been so high, he said, that they will undoubtedly contribute significantly to the professional literature during their medical careers.

### Ciba Research Fellowship

The Ciba Company Limited, Montreal, announces the establishment of an annual Ciba Medical Research Fellowship for the promotion of medical research in Canadian universities. The first Fellowship is to be awarded for the year from July 1, 1957, to June 30, 1958, and the Fellow will be chosen on March 30, 1957.

The Ciba Medical Research Fellowship will include an award of \$3000.00 to the successful candidate and a grant of \$500.00 to the Department where the Fellow will be working to help cover the expenses incurred by the Department in connection with the Fellow's research.

In general a new Fellow will be chosen each year, but in special circumstances the Fellowship may be renewed for a period of one year, provided that a re-application is made at the time announced for receipt of new applications. Re-applications will be considered on the same basis as new applications submitted at the same time.

The Ciba Medical Research Fellowship is open on equal terms to men and women and is awarded to the applicant who is deemed best qualified on the evidence submitted.

The Fellowship will be paid in four instalments: June 15, October 1, January 1 and April 1.

In certain cases a special grant may be made, on the recommendation of the Fellowship committee, to help defray the travelling expenses incurred by the Fellow on moving to and from the city where he will be studying.

The choice of the Ciba Research Fellow will be made by an independent Fellowship committee composed of five members.

Application forms, which should be in the hands of the Fellowship Officer by March 1, 1957, may be obtained from the Deans of Medicine of Canadian Universities or from the Fellowship Officer: C. Walter Murphy, M.D., Ciba Company Limited, 1235 McGill College Avenue, Montreal, P.Q.

### Apartments for the Infirm Person of Means

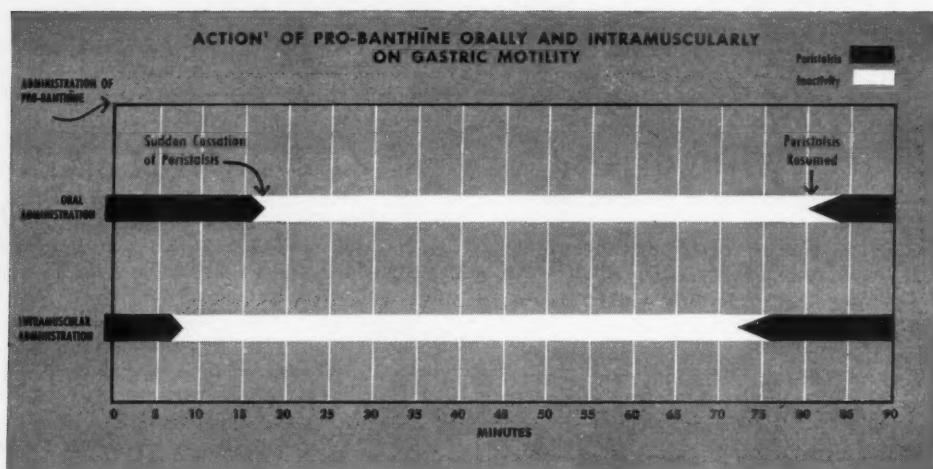
The infirm person of means without family has the choice of roughing it alone, hiring a nurse or companion or going to a nursing home. The problem would be solved for many by an apartment in a building with an elevator, a common room with a TV set, and an intercom system in each apartment so that 2 way communication with nurses in the same building could be maintained.

Such a scheme will be organized on one floor of a new apartment building in St. James by Mr. Wm. Lount, VE 2-1811 if there are 14 applications. Rents will be from \$87.50 to \$125.00 depending on apartment size, plus one fourteenth of the rent for the common room. Nursing service cost will vary with the amount of service needed.

### Medical Library Accessions

The Medical Library issues lists of books added to the Library twice a year. The January-to-June receipts list is distributed during the autumn and the July-to-December list early in the spring. These are always sent to the hospitals and clinics in Manitoba.

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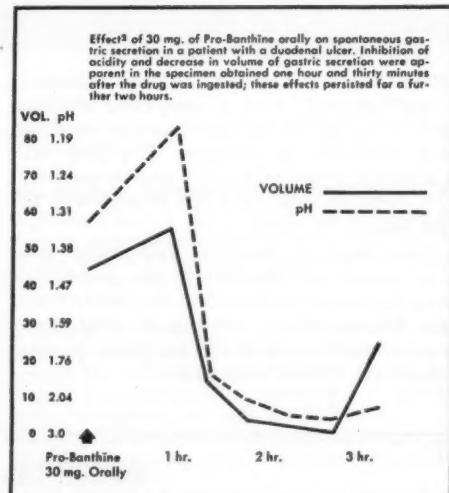
Administering Pro-Banthine, 30 mg. orally or from 10 to 30 mg. parenterally in human subjects, Barowsky observed<sup>1</sup> that "relatively complete gastric inactivity" was produced. "Gastric peristalsis stops . . . and leaves the stomach in a relaxed state. At the same time, the rhythmic (pyloric function) opening and closing of the pylorus ceases. . ." Gastropyloric relaxation lasted for one hour and ten minutes or longer.

The ability of Pro-Banthine to inhibit spontaneous and histamine-stimulated gastric secretion has been demonstrated<sup>2</sup> by Roback and Beal. Both quantitative and qualitative reductions were observed in this study.

Pro-Banthine (brand of propantheline bromide) consistently reduces hypermotility and associated symptoms in duodenal and gastric ulcer, gastritis, pylorospasm, acute and chronic pancreatitis, colonic spasm, biliary dyskinesia and bladder spasm. G. D. Seale & Co., Research in the Service of Medicine.

1. Barowsky, H.: Am. J. Gastroenterol. 23:557 (June) 1955.

2. Roback, R. A., and Beal, J. M.: Gastroenterology 25:24 (Sept.) 1953.



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## Obituary

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### Dr. George Camsell

Dr. George Camsell, 85, of Winnipeg, died on January 20. His father came to Fort Garry in 1857 as an ensign with the Royal Canadian Regiment, then entered the service of the Hudson's Bay Company and became a Chief Factor. George was born at Fort Simpson, N.W.T., and at the age of 8 was sent to St. John's College School at Winnipeg. He graduated in Arts in 1889 and in Medicine from Manitoba Medical College in 1894. He practised for many years at Austin, Manitoba, before becoming resident medical officer at Stony Mountain Penitentiary. He is survived by two sisters and three brothers, one of whom is Charles Camsell, LL.D., former deputy minister of mines at Ottawa.

## Book Review

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**Review on the Administration of Health Insurance in Canada.** Malcolm G. Taylor. Oxford University Press, 480 University Ave., Toronto 2. 270 pp. Price \$5.00.

Whether we doctors like it or not, health insurance in its broadest sense is of vital importance to all of us, and Dr. Malcolm Taylor in his comprehensive and timely book sums up and evaluates the experience gained from insurance against hospital costs, and medical and surgical expenses, with nearly nine million Canadians in various types of plans: including profession sponsored, government sponsored, commercial, and cooperative.

Dr. Taylor examines the objectives, the achievements, and problems of the various plans: how they are organized, administered, and regulated; the problems of enrolment and controls; how benefits are determined and premiums set; and how these plans affect the interests of patients, doctors, and hospitals.

My impression is that any doctor upon reading this book cannot fail to realize the importance of the part each member of our profession plays in the functioning of any form of health insurance, and the impact each doctor's discharge of that responsibility can have on the degree to which the public is able to insure hospital and medical costs.

In the chapter dealing with the problem of controls, Dr. Taylor touches a rather sensitive point when he states: "The rapid development of the prepayment plans has introduced, or at least has greatly exacerbated, the type of unprofessional conduct associated with over-servicing and over-charging and with actual fraudulent claims. Like many other people who believe that a corpor-

ation or the government is "fair game," some seem to draw a fine moral distinction between over-charging a patient and over-charging an impersonal insurance fund." No figures are given to indicate how serious this problem may be or if the incidence of such conduct varies in different areas. It has always been my impression that over-servicing constituted a rather minor abuse.

In his concluding chapter Dr. Taylor comments on the various systems of payment used by insuring agencies and the necessity for developing still more experience when he says:

"With practically every physician and hospital in Canada receiving a substantial part of their annual income from insurance funds, and these expenditures now reaching well over a hundred million dollars per year, the importance of the methods of payment used by insuring agencies cannot be over-stressed. Because of the intrinsic economic incentives in any payment process, the system adopted can have obviously significant effects on the quantity and quality of care, as well as on the ease and effectiveness of administration. The basic problem for the administrator is that the one method most strongly supported by the medical profession and the hospitals and the one most widely used—fee-for-service—is at the same time the most difficult to administer. By its supporters it is held to be the method best designed to ensure interest in the patient, ensure quality of care, reward the competent and energetic practitioner, and provide the greatest flexibility in administration; by its critics it is held to ensure interest primarily in the fee, encourage hasty and unnecessary work, reward the mercenary-minded, and make medical care unnecessarily expensive and red tape inescapable. Each of the other two methods—capitation and salary—have equally vociferous supporters and detractors equipped with a similarly stocked armament."

"This is without doubt the most serious administrative problem to be faced in the years ahead, and it is essential that experiments be undertaken with other methods and combinations thereof to yield a rich body of experience on which to base decisions. Thus will the dogma currently used be replaced by logic. Payment systems for professional services should provide adequate remuneration so that the health professions will continue to attract outstanding university students; they should support and strengthen other incentives for quality service; they should provide incentives for preventive care; and they should remove incentives for abuse and reduce red tape and administrative controls to an absolute minimum."

At a time when all of us should have a general knowledge of health insurance I can think of no easier way to obtain a good understanding of the subject and its many related problems than by reading Dr. Taylor's very excellent book.

F. H. S.

**Detailmen's Directory**

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